ALD/ALE 2025 Program Overview

AA	ALD Applications
AF	ALD Fundamentals
ALDALE	ALD & ALE
ALE	Atomic Layer Etching
AM	ALD for Manufacturing
AS	Area Selective ALD
EM	Emerging Materials
NS	Nanostructure Synthesis and Fabrication
PS	Plenary Session
TS	Tutorial

ALD/ALE 2025 Program Overview

Room /Time	Event Hall	Halla Hall AB	Samda Hall AB	Tamna Hall A	Tamna Hall B
SuA		TS-SuA: Tutorial Session			
MoM				PS-MoM: Plenary Session	
MoA		AF1-MoA: ALD on 3D Structures	ALE-MoA: ALD+ALE - Emerging ALE	ALDALE-MoA: Student Award Session AA-MoA: Memory Applications I	AF2-MoA: Precursor Chemistry I
MoP	Poster Sessions				
TuM		AF1-TuM: Mechanism and Theory I AF2-TuM: Mechanism and Theory II	ALE1-TuM: Thermal Gas Phase ALE ALE2-TuM: ALE Applications I	AA1-TuM: Memory Applications II AA2-TuM: EUV and Patterning Applications	AF3-TuM: Precursor Chemistry II EM-TuM: Molecular Layer Deposition & Hybrid Materials I
TuA		AF1-TuA: Analysis AF2-TuA: Plasma ALD	ALE1-TuA: ALE Tools & ALE Modeling ALE2-TuA: ALE Applications II	AA-TuA: 3D Semiconductor Devices AS-TuA: Area Selective Deposition I	EM-TuA: Molecular Layer Deposition & Hybrid Materials II NS-TuA: 2D Materials and Devices
TuP	Poster Sessions				
WeM		AA1-WeM: Catalyst and Fuel Cell Applications AA3-WeM: Other Energy Applications	ALE1-WeM: Plasma and/Energy-Enhanced ALE + Sustainability ALE2-WeM: ALE Applications III	AS1-WeM: Area Selective Deposition II AS2-WeM: Area Selective Deposition III	AA2-WeM: Display Applications AF-WeM: Material Growth I
WeA		AA1-WeA: Battery Applications I AA2-WeA: Battery Applications II	AM1-WeA: ALD Equipment I AM2-WeA: ALD Equipment II	AS-WeA: Area Selective Deposition IV AA3-WeA: Emerging Applications	AF-WeA: Material Growth II AA4-WeA: Medical Applications

Sunday Afternoon, June 22, 2025

Tutorial
Room Halla Hall AB - Session TS-SuA
Tutorial Session
Moderators: Heeyeop Chae, Sungkyunkwan University (SKKU), Republic of Korea,
Han-Bo-Ram Lee, Incheon National University, Republic of Korea

1:00pm	**INVITED: TS-SuA-1** ALD for Hydrogen Technology, ***Jihwan An,*** POSTECH, Republic of Korea	
1:45pm	**INVITED: TS-SuA-4** ALD Process Optimization Using Machine Learning: A Practical Tutorial for Domain Experts, ***Pil Sung Jo,*** Gauss Labs Inc, Republic of Korea	
2:30pm	**INVITED: TS-SuA-7** ALD-Enabled Synthesis of Metal-Organic Framework Thin Films: Fundamentals to Applications, ***Junjie Zhao,*** Zhejiang University, China	
3:15pm	**BREAK**	
3:30pm	**INVITED: TS-SuA-11** The Importance of Interconnect Technology of Si Devices and The Extension of ALD Processes, ***Hoonjoo Na,*** Samsung Electronics, Republic of Korea	
4:15pm	**INVITED: TS-SuA-14** Atomic Layer Etching: Basics, Chemistries, and New Developments, ***Jane P. Chang,*** UCLA	
5:00pm	**INVITED: TS-SuA-17** The Era of Atomic Scale Processing: When Area-Selective Deposition Meets Atomic Layer Etching, ***Silvia Armini,*** IMEC, Belgium	

Monday Morning, June 23, 2025

	Plenary Session **Room Tamna Hall A - Session PS-MoM** **Plenary Session** **Moderators: Heeyeop Chae**, Sungkyunkwan University (SKKU), Republic of Korea, **Han-Bo-Ram Lee**, Incheon National University, Republic of Korea	
8:45am	**PS-MoM-1** ALD Welcome and Introductory Remarks	
9:00am	**INVITED: PS-MoM-2** ALD Plenary Lecture: The Evolution of DRAM: Scaling Challenges, ALD Innovations, and Future Architectures, ***Seiyon Kim***, SK Hynix, Republic of Korea	
9:45am	**INVITED: PS-MoM-5** ALD 2025 Innovator Awardee Talk: Atomic Layer Deposition of Metal Phosphates and Metal Borates through Thermal and Plasma Activated Approaches, ***Christophe Detavernier***, Ghent University, Belgium	
10:15am	**BREAK & EXHIBITS**	
10:45am	**PS-MoM-9** ALE Welcome and Introductory Remarks	
11:00am	**INVITED: PS-MoM-10** ALE Plenary Lecture: Challenges and Future of ALE Technology in Semiconductor Manufacturing, ***Chanmin Lee***, Samsung Electronics, Republic of Korea	

Monday Afternoon, June 23, 2025

	ALD Fundamentals **Room Halla Hall AB - Session AF1-MoA** **ALD on 3D Structures** **Moderators: Hao Van Bui**, Phenikaa University, Viet Nam, **Arrelaine Dameron**, Forge Nano	**Atomic Layer Etching** **Room Samda Hall AB - Session ALE-MoA** **ALD+ALE - Emerging ALE** **Moderators: Silvia Armini**, IMEC Belgium, **Huichan Seo**, SK Hynix, Republic of Korea
1:30pm		
3:30pm	**BREAK & EXHIBITS**	**BREAK & EXHIBITS**
4:00pm	**INVITED: AF1-MoA-11** Continuous Production of Nanocoated Powders, ***Sébastien Moitzheim,*** Powall, Netherlands	**INVITED: ALE-MoA-11** Revolutionizing Semiconductor Scaling with Atomic Layer Etch Pitch Splitting, ***Jonas Sundqvist,*** *Reza Jam, Robin Athle, Yoana Ilarionova, Asif Hassan, Intu Sharma, Amin Karimi,* AlixLabs, Sweden*; Fred Roozeboom,* AlixLabs, Netherlands*; Dmitry Suyatin,* AlixLabs, Sweden
4:30pm	**AF1-MoA-13** Plasma-Enhanced Spatial ALD on 2D and 3D Surface Topologies: The Case of Amorphous and Crystalline TiO_2, ***Mike van de Poll (Graduate Student),*** Eindhoven University of Technology, Netherlands*; Jie Shen,* Holst Centre / TNO, Netherlands*; James Hilfiker,* J.A. Woollam Co., Inc.*; Marcel Verheijen, Paul Poodt,* Eindhoven University of Technology, Netherlands*; Fieke van den Bruele,* Holst Centre / TNO, Netherlands*; Erwin Kessels, Bart Macco,* Eindhoven University of Technology, Netherlands	**ALE-MoA-13** Exploring Atomic Layer Etching Behavior Differences in ZnO Crystallographic Planes and Surface Energy Analysis via DFT, *Jin Seong Park,* ***Ji Hyun Gwoen,*** *Hae Lin Yang, Min Chan Kim, Gyeong Min Jeong,* Hanyang University, Korea*; Cas Visser, Erwin Kessels,* Eindhoven University of Technology, The Netherlands
4:45pm	**AF1-MoA-14** Rapid Test for ALD in High Aspect Ratio Spaces Utilizing Thermally Bonded Chips and Hydrazine with Titanium Tetrachloride for TiN Deposition, *Amy Ross, Dipayan Pal, Dohyun Go, Diego Contreras Mora, Ping-Che Lee,* UC San Diego*; Danish Baig,* Georgia Institute of Technology*;* ***Adrian Alvarez,*** RASIRC, USA*; Dan Le, Jeffery Spiegelman,* RASIRC*; Muhannad Bakir,* Georgia Institute of Technology*; Andrew Kummel,* UC San Diego	**ALE-MoA-14** Investigation of Plasma ALD and ALE of Al_2O_3 in Nanoscale Structures: Towards Corner Lithography at the sub-20 nm Scale, ***Nicholas J. Chittock,*** Oxford Instruments Plasma Technology, UK*; Erwin Berenschot, Niels Tas, Melissa J. Goodwin,* University of Twente, Netherlands*; Marcel A. Verheijen,* Eurofins Materials Science, Netherlands*; Meghali Chopra, Yang Ban,* Sandbox Semiconductor*; Erwin Kessels, Adriaan J.M. Mackus,* Eindhoven University of Technology, Netherlands
5:00pm	**AF1-MoA-15** Enhancing Step Coverage in High-Temperature Ald for Advanced Semiconductor Scaling, *Seung Hyun Lee, Deok Hyun Lee,* Soulbrain Co., Ltd., Republic of Korea*; Kok Chew Tan,* Soulbrain Co., Ltd., Malaysia*; Sung Gi Kim,* ***Gyun Sang Lee,*** *Jung Hun Lim, Jae Sun Jung,* Soulbrain Co., Ltd., Republic of Korea	**ALE-MoA-15** Optimizing EUV Etching with In-Situ Atomic Processing: Where and Why?, ***Philippe Bezard,*** IMEC Belgium*; Atefeh Fathzadeh,* KU Leuven and Imec, Belgium
5:15pm	**AF1-MoA-16** ALD as the Solution for Uniform Cu Electroplating in High Aspect Ratio Vias, ***Matthew Weimer,*** *Sara Harris,* Forge Nano*; Irina Stateikina,* Centre de Collaboration MiQro Innovation (C2MI), Canada*; Dane Lindblad,* Forge Nano*; Marc Guilmain, Xavier Gaudreau-Miron,* Centre de Collaboration MiQro Innovation (C2MI), Canada*; Arrelaine Dameron,* Forge Nano	
5:30pm	**AF1-MoA-17** Multi-Scale Model for Optimization of Low-Temperature Al_2O_3 ALD Process Conformality Within High Aspect Ratio Trench, ***Ivan Petraš,*** *Yury Shustrov, Andrey Smirnov,* Semiconductor Technology Research d.o.o. Beograd, Serbia	

Monday Afternoon, June 23, 2025

	Room Tamna Hall A	
1:30pm	**ALDALE-MoA-1** ALD Student Award Finalist Talk: Integrating Machine Learning into Atomic Layer Deposition: A Case Study on Hafnium Oxide Process Optimization, ***Minjong Lee (Graduate Student)***, *Doo San Kim, Thi Thu Huong Chu, Dushyant Narayan, Dan Le, Soubhik De,* University of Texas at Dallas*; Si Joon Kim,* Kangwon National University, Republic of Korea*; Jiyoung Kim,* University of Texas at Dallas	**ALD & ALE** **Session ALDALE-MoA** **Student Award Session** **Moderators:** **Jihwan An**, Pohang University of Science and Technology (POSTECH), Republic of Korea, **Parag Banerjee**, University of Central Fllorida
1:45pm	**ALDALE-MoA-2** ALD Student Award Finalist Talk: The AtomicLimits ALD/E Database: Unlocking the Future of ALD/E with Large Language Models, ***Eleni Poupaki (Graduate Student)***, Eindhoven University of Technology, Netherlands*; Sameer Sadruddin, Jennifer D'Souza,* TIB Leibniz Information Centre for Science and Technology, Germany*; Alex Watkins, Bora Karasulu,* University of Warwick, UK*; Sören Auer,* TIB Leibniz Information Centre for Science and Technology, Germany*; Adrie Mackus, Erwin Kessels,* Eindhoven University of Technology, Netherlands	
2:00pm	**ALDALE-MoA-3** ALD Student Award Finalist Talk: Influence of Hydrocarbon Chain Length in Phenyl(Alkyl)trimethoxysilane Inhibitors on AS-ALD Selectivity: Comparison of Adsorption Mechanisms in Gas-phase and Liquid-phase, ***Hae Lin Yang (Graduate Student)***, *Minchan Kim,* Hanyang University, Korea*; Eun Chong Cho,* Sungkyunkwan University, Korea*; Seunghwan Lee, Beomseok Kim, Changhwa Jung, Hanjin Lim,* Samsung Electronics Co., Inc., Republic of Korea*; Jung-Hoon Lee, Youngkwon Kim,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea*; Jin-Seong Park,* Hanyang University, Korea	
2:15pm	**ALDALE-MoA-4** ALD Student Award Finalist Talk: Molecular Layer Deposition (MLD): A New Platform for Precision Engineering of Water Filtration Membranes, ***Ruoke Cai (Graduate Student)***, *Brian Welch, Tamar Segal-Peretz,* Technion Israel Institute of Technology, Israel	
2:30pm	**ALDALE-MoA-5** ALD Student Award Finalist Talk: Diffusion Behavior Study for Vapor Phase Infiltration Using Quartz Crystal Microgravimetry and its Application in Energy Storage Materials, ***Rongliang Shang (Graduate Student)***, *Jin Xie,* ShanghaiTech University, China	
2:45pm	**ALDALE-MoA-6** ALE Student Award Finalist Talk: Lateral Etching of 2D MoS_2 Crystalline Layers Using Sequential Ozone and Thionyl Chloride Exposures, ***Janine Sempel (Graduate Student)***, University of Colorado at Boulder*; Taewook Nam,* Sejong University, Korea (Democratic People's Republic of)*; Tianyi Zhang, Jing Kong,* Massachusetts Institute of Technology*; Steven George,* University of Colorado at Boulder	
3:00pm	**ALDALE-MoA-7** ALE Student Award Finalist Talk: A Sustainable and Precise Solution to IGZO Etch Residual Challenges Using Transient-Assisted Processing (TAP), ***Atefeh Fathzadeh (Graduate Student)***, KU Leuven and Imec, Belgium*; Philippe Bezard, Thierry Conard, Frank Holsteyns,* IMEC Belgium*; Stefan De Gendt,* KU Leuven and Imec, Belgium	
3:15pm		
3:30pm	**BREAK & EXHIBITS**	
4:00pm	**INVITED: AA-MoA-11** Atomic Layer Technology for Ferroelectrics and Resistive Switching Devices: Advances in Epitaxial Growth, Doping, and Defect Control, ***Miin-Jang Chen***, *Yu-Sen Jiang, Ting-Yun Wang, Chen-Hsiang Ling,* Department of Materials Science and Engineering, National Taiwan University, Taiwan	**ALD Applications** **Session AA-MoA** **Memory Applications I** **Moderators:** **Hanmei Choi**, Samsung Electronics, Republic of Korea, **Robert Clark**, TEL Technology Center, America, LLC
4:30pm	**AA-MoA-13** Study of Resistivity in TiN Films with SiH_4 Doping in the Thermal ALD Process, ***Siun Song***, *Chaewon Kwak, Yooseong Kim, Kyubeom Lee, Dongwon Seo,* Hanwha Semitech, Republic of Korea	
4:45pm	**AA-MoA-14** ALD of ferroelectric TiN/$Hf_{0.5}Zr_{0.5}O_2$/TiN stacks; growth and interfacial oxidation studied by *in situ* spectroscopic ellipsometry, ***Stijn van der Heijden (Graduate Student)***, Eindhoven University of Technology, Netherlands*; Florian Wunderwald, Uwe Schroeder,* Namlab, Germany*; Marcel Verheijen, Erwin Kessels, Bart Macco,* Eindhoven University of Technology, Netherlands	
5:00pm	**AA-MoA-15** Stable Synaptic Function and Orientation Selectivity Recognition Under Strain in Bilayer Stretchable Memristors via Atomic Layer Deposition, ***Ying-Jie Ma (Graduate Student)***, *Ai-Dong Li,* Nanjing University, China	
5:15pm	**AA-MoA-16** P-Type Tellurium Thin Film Transistor with Sacrificial Atomic Layer Deposition, ***Wonho Choi (Graduate Student)***, *Byongwoo Park, Seungjae Yoon, Jeong Woo Jeon, Gwangsik Jeon, Sangmin Jeon, Sungjin Kim,* Seoul National University, South Korea*; Chanyoung Yoo,* Hongik University, Republic of Korea*; Cheol Seong Hwang,* Seoul National University, South Korea	
5:30pm	**AA-MoA-17** Atomic-Scale Processing of Ruthenium Thin Films via ALD and ALE for Advanced Interconnects, *ChangHwan Choi,* ***YoungSeo Na (Graduate Student)***, *HyunJin Lim, SangKuk Han, HyoJin Ahn, YehBeen Im, WonJae Choi,* Hanyang University, Korea	

Monday Afternoon, June 23, 2025

	Room Tamna Hall B	
1:30pm		**ALD Fundamentals** **Session AF2-MoA** **Precursor Chemistry I** **Moderators:** **Seán Barry**, Carleton University, Canada, **Haripin Chandra**, EMD Electronics, USA
3:30pm	**BREAK & EXHIBITS**	
4:00pm	**INVITED: AF2-MoA-11** The Emergence of New Ligands for ALD Precursor Development, ***Anjana Devi,*** Leibniz Institute for Solid State and Materials Research, Germany	
4:30pm	**AF2-MoA-13** Perspective on Beryllium Compounds as Precursors for ALD Applications, ***Dominik Naglav-Hansen,*** Ruhr University Bochum, Germany; *Magnus Buchner,* University of Marburg, Germany; *Martin Wilken,* Ruhr University Bochum, Germany; *Deniz F. Bekiş,* University of Marburg, Germany	
4:45pm	**AF2-MoA-14** Anhydrous Hydrogen Iodide Source for ALD of CsI and Other Metal Halides , ***Georgi Popov***, *Alexander Weiß, Anton Vihervaara, Kenichiro Mizohata, Mikko Ritala, Marianna Kemell,* University of Helsinki, Finland	
5:00pm	**AF2-MoA-15** Evaluating Trisilylamine and Diiodosilane as Silicon Precursors for PEALD of Silicon Nitride in Front-End-of-Line Applications, ***Keerthi Dorai Swamy Reddy,*** *Marco Lisker,* IHP - Leibniz Institut fuer innovative Mikroelektronik, Germany	
5:15pm	**AF2-MoA-16** Precursor Design for Thermal ALD of Silver Metal, ***David Emslie,*** *Nick Hoffman,* McMaster University, Canada	
5:30pm	**AF2-MoA-17** A Novel Liquid Cocktail Precursor for Atomic Layer Deposition of Hafnium-Zirconium-Oxide Films for Ferroelectric Devices, ***Akihiro Nishida,*** *Tsukasa Katayama, Takashi Endo, Yasutaka Matsuo,* Hokkaido University, Japan	

ALD for Manufacturing
Room Event Hall - Session AM-MoP
ALD for Manufacturing Poster Session
5:45 – 7:00 pm

AM-MoP-1 Low-Temperature Atomic Layer Deposition of Silicon Nitride Films Using Space-Division Equipment, ***Jae-Min Park***, *Taeho Jeon, Sung-Eun Lee, Hojin Nam, Hyeong Wook Kim, Hyunsik Hwang, Changhee Han, Heonhyeong Lim, Sangjoon Park,* WONIK IPS Co., Ltd., Republic of Korea

AM-MoP-2 Assessing the Potential of Non-Pyrophoriczn(Dmp)$_2$ for the Fast Deposition of ZnO Functionalcoatings by Spatial Atomic Layer Deposition, ***David Muñoz-Rojas***, CNRS, France*; Liam Johnston,* LMGP, France*; Jorit Obenlüneschloß,* RUB, Germany*; Anjana Devi,* IFW, Dresden, Germany*; Daniel Bellet,* Grenoble INP, France

AM-MoP-3 A Novel Microwave ECR Plasma System for Damage-Free PEALD, ***Paul Dreher***, *Dominik Hartmann,* Evatec AG, Switzerland*; Julian Pilz,* Silicon Austria Labs, Austria*; Jörg Patscheider,* Evatec AG, Switzerland

AM-MoP-4 Optimization of the showerhead for Atomic Layer Deposition by Computational Fluid Dynamics, ***Seungheon Lee (Graduate Student)***, *Dongkun Song, Gyeongwon Min, Doyoung Jung, Jungeon Park, Jeongmin Han, Dahye Geum, Hyeondo Han, Seungwan Bae, Hyoeun Lee, Guyoung Cho,* Dankook University, Republic of Korea

AM-MoP-5 Very High Frequency Plasma-Enhanced ALD: System Configuration and Thin Film Property Analysis, ***Jae Yeon Han***, *Hyung Min Kim, Da Eun Bae, Jae Ho Choi, Jae Hack Jeong,* CN1 Co., Ltd, Republic of Korea

AM-MoP-6 Pneumatic Optimization Utilizing Predictive Analytics Within Embedded Systems for Dose Control of Fast Pulsing Valves., ***Frank Horvat***, Swagelok Company

AM-MoP-7 Fast Deposition of High-Quality ALD Materials Using the PlasmaPro ASP System, ***Yi Shu***, *Arpita Saha, Dmytro Besprozvannyy Besprozvannyy, Michael Powell Powell, Agnieszka Kurek,* Oxford Instruments Plasma Technology, UK*; Harm Knoops,* Oxford Instruments Plasma Technology, UK, Eindhoven University of Technology, Netherland, UK

AM-MoP-8 Non-Destructive Characterization of Alumina Film Thickness and Fractional Coverage Utilizing XPS and StrataPHI Modeling, ***Amy Ferryman***, *Norb Biderman, Kateryna Artyushkova,* Physical Electronics

AM-MoP-9 Optimization of Liquid Fluidization Design for Temperature Control on the Showerhead, ***Eunsun Jung***, *Tae S Cho, Eungseo Kim, Bonuk Koo,* WONIK IPS, Republic of Korea

AM-MoP-10 XPS Metrology for Area Selective Deposition Applications in Semiconductor Manufacturing, ***Kangwon Kim***, *Hyung Keun Yoo,* Samsung Electronics, Republic of Korea*; Heechang Yang, Sunho Kim,* Nova Measuring Instruments Korea, Ltd., Republic of Korea*; Wei Ti Lee, Torsten Stoll,* Nova Measuring Instruments, Inc.

AM-MoP-12 A Remote Plasma Spectroscopy Diagnostic for Monitoring of Atomic Layer Deposition Processes, ***Marcus Law***, Gencoa Ltd., UK

AM-MoP-13 Early Detection of Process Window Shifts in ALD processes by PillarHall Lateral High Aspect Ratio Test structures, ***Jani Karttunen***, Chipmetrics Oy, Finland*; Anish Philip,* Aalto University, Finland*; Jussi Kinnunen, Kalle Eskelinen, Feng Gao, Mikko Utriainen,* Chipmetrics Oy, Finland

AM-MoP-14 Optical Monitoring of MoCl5 and MoOCl4 Vapor Delivery for Atomic Layer Deposition Applications, ***Berc Kalanyan***, *James Maslar,* NIST-Gaithersburg

AM-MoP-15 Process Monitoring via Time-of-Flight Mass Spectrometry based on Isotopic Patterns, *Hye-Young Kim,* ***Sung Kyu Jang***, *Seul-Gi Kim, Yoonjeong Shin, Jong Hyun Choi, Hyeongkeun Kim,* Korea Electronics Technology Institute, Republic of Korea

ALD Fundamentals
Room Event Hall - Session AF-MoP
ALD Fundamentals Poster Session
5:45 – 7:00 pm

AF-MoP-1 Atomic Layer Deposition of P-type Oxide Semiconductor Thin Films Using a Novel Precursor for Transistor Applications, ***Sol-Hee Jo (Graduate Student)***, *Jung-Hoon Lee, Jimin Seo, Bo Keun Park,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea

AF-MoP-2 Silicon Nitride Ald Process Using Diiodosilane and Hydrazine for Low Temperature Deposition, ***Hayato Murata***, *Takuya Yoshikawa, Yoshifumi Wada, Hideharu Shimizu,* Taiyo Nippon Sanso Corporation, Japan

AF-MoP-3 Characterization of Novel Precursors for Improved ALD Performance in HfO_2 Films, ***Dahyun Lee***, *Hohoon Kim, Sejin Jang, Seonah Kim, Dong-geun Lee,* Merck KGaA, Darmstadt, Republic of Korea*; Khang Ngo, Randall Higuchi,* Merck KGaA, Darmstadt

AF-MoP-4 Effect of Impurities in Trimethylaluminum on Conformality of Al_2O_3 Thin Film on Patterned Substrate Grown by ALD, ***Shuya Ikemura***, *Kohei Iwanaga,* TOSOH Corporation, Japan

AF-MoP-5 Thermolysis of Silicon Precursors for High-Temperature Atomic Layer Deposition Processes, ***Tanzia Chowdhury***, *Okhyeon Kim, Hye-Lee Kim,* Sejong University, Republic of Korea*; Jung Woo Park,* Hansol Chemical Co., Ltd., Republic of Korea*; Won-Jun Lee,* Sejong University, Republic of Korea

AF-MoP-6 On an Initial Incubation Process of Thermal ALD Pt on ALD Al_2O_3 Measured by Temperature Stabilized In-line QCM, ***Masafumi Kumano***, Micro System Integration Center, Tohoku University, Japan*; Makoto Shimizu,* Graduate School of Engineering, Department of Mechanical Systems Engineering, Tohoku University, Japan*; Takuma Yamamoto,* Graduate School of Engineering, Department of Mechanical Engineering, Tohoku University, Japan*; Shuji Tanaka,* Graduate School of Engineering, Department of Robotics, Japan

AF-MoP-7 Oxide Film ALD Using Oh Radicals Generated by Mixing Pure Ozone Gas with Hydrogen-Included Molecular Gas Over 200^{O}C, ***Naoto Kameda***, MEIDENSHA Corp., Japan*; Kenichi Uehara, Shigeo Yasuhara,* Japan Advanced Chemicals Corp., Japan*; Soichiro Motoda, Tetsuya Nishiguchi,* MEIDEN NANOPROCESS INNOVATIIONS Inc., Japan

AF-MoP-8 Novel Indium Precursor with Improved Physical Properties and ALD Window for Atomic Layer Deposition of Indium Oxide, ***Randall Higuchi***, *Khang Ngo,* Merck KGaA, Darmstadt*; Lukas Mai, Paul Mehlmann,* Merck KGaA, Darmstadt, Germany*; Daniel Moser, Bhushan Zope,* Merck KGaA, Darmstadt*; Holger Heil,* Merck KGaA, Darmstadt, Germany

AF-MoP-9 Atomistic Modeling Methodologies for Atomic Layer Deposition, ***Yong-Ju Kang***, Synopsys Korea Inc., Republic of Korea*; Suresh Kondati Natarajan,* Synopsys Inc., Denmark*; Rafshan Ul Atik,* Synopsys India Pvt. Ltd., India*; Jess Wellendorf, Søren Smidstrup,* Synopsys Denmark ApS, Denmark

AF-MoP-10 Unraveling the Influence of Substrate Surface and Temperature on Microstructural Evolution of Crystalline MoS_2 in Atomic Layer Deposition, ***Seung Ho Ryu (Graduate Student)***, *Seong Keun Kim,* Korea University, Republic of Korea

AF-MoP-11 Novel Alkoxy-Bridged Silicon Precursor for Plasma Enhanced Chemical Vapor Deposition of Low-k SiCOH Spacer Thin Film, ***Jongryul Park***, *Sooyong Jung, Seokhee Shin, Yongjoo Park,* SK Trichem, Republic of Korea

AF-MoP-12 High Temperature Atomic Layer Deposition of Hafnium Oxide Film using Novel Liquid Hf Precursor Deposition, ***Kim Daeyeong***, SK Trichem, Republic of Korea*; Oh Jieun, Lee Seo-Hyun, Kim Woo Hee Kim,* Hanyang University, Korea*; Park Yongjoo,* SK Trichem, Republic of Korea

AF-MoP-13 Analysis of Plasma Characteristics and Substrate Damage Using a Dual-Frequency PE-ALD Process with 13.56 MHz and 100 MHz, ***Da-Eun Bae***, *Hyung Min Kim, Jae Yeon Han, Jae Ho Choi, Jae Hack Jeong,* CN1 Co., Ltd., Republic of Korea

AF-MoP-14 High-Temperature, High-Growth Rate Atomic Layer Deposition of Silicon Oxide Thin Films Using a Novel Precursor, ***Changgyu Kim (Graduate Student)***, *Mi-Soo Kim, Okhyeon Kim, Jihwan Lee,* Sejong University, Republic of Korea*; Seunggyun Hong, Byung-Kwan Kim, Jin Sik Kim, Wonyong Koh,* UP Chemical Co., Ltd., Republic of Korea*; Hye-Lee Kim, Won-Jun Lee,* Sejong University, Republic of Korea

AF-MoP-15 Development of New Group 3 Metal and Lanthanide Precursors with Volatility and Thermal Stability for ALD, ***Yongmin Go (Graduate Student)***, *Bo Keun Park,* 141, Gajeong-ro, Yuseong-gu, Republic of Korea

AF-MoP-16 Exploring Ultrathin SnO_2 Films via Atomic Layer Deposition for Facilitating the Formation of the Rutile TiO_2 Phase, *InHwan Baek,* ***YooHyeon Jung***, *InHong Hwang,* Inha University, Republic of Korea

AF-MoP-17 Novel ALD Indium Precursor for In_2O_3 Thin Film Fabrication, ***Dong Hyeon Bang (Graduate Student)***, *Bo Keun Park, Yongmin Go, Sunyoung Shin, Ji Yeon Ryu,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea

AF-MoP-18 Optimization of ALD Processes and High-Quality Thin Film Formation Using the Liquid Aluminum Precursor 1,5-Dimethyl-1-Alumina 5-Azacyclooctane, *Sangick Lee,* ***Sanghun Lee***, *Yunsik Park, Sejin Jang, JoongJin Park, Sangyong Jeon, JunHee Cho,* DNF, Korea (Democratic People's Republic of)

AF-MoP-19 Low-Resistivity Molybdenum Thin Films Deposited by ALD Using Molybdenum(0) Organometallic Compounds and Iodine-Containing Reactant, *Sang Ick Lee,* ***Ji Hyeon Youn***, *Yo Han Jo, Won Mook Chae, Sang Yong Jeon, Joong Jin Park, Se Jin Jang,* DNF Co., Ltd., Republic of Korea

AF-MoP-20 Valence-state Controlled Growth of P-type Tin(II) Monoxide Films by Atomic Layer Deposition using a Novel Sn Precursor, *Jeong Hwan Han,* ***Jeong Eun Shin (Graduate Student),*** Seoul National University of Science and Technology, Republic of Korea*; Heesun Kim, Bo Keun Park,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea

AF-MoP-21 Synthesis and Characterization of Ge and Sn ALD Precursors with Aminoketone Ligands, ***Chang Min Lee (Graduate Student),*** *Bo Keun Park, Heesun Kim, Ji Min Seo, Yongmin Go,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea*; Seung Uk Son,* Sungkyunkwan University, Korea*; Ji Yeon Ryu, Taek Mo Chung,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea

AF-MoP-22 M(II) (M = Ni, Cu, Ge, Sn) ALD Precursors Using N-tert-butylformamide Ligand, ***Mi Jeong Kim (Graduate Student),*** Korea Research Institute of Chemical Technology (KRICT), Republic of Korea*; Ji Min Seo,* korea research Institute of Chemical Technology (KRICT), Republic of Korea*; Heesun Kim,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea*; Yongmin Go,* korea research Institute of Chemical Technology (KRICT), Republic of Korea*; Seung Uk Son,* Sungkyunkwan University, Korea*; Ji Yeon Ryu, Taek-Mo Chung, Bo Keun Park,* korea research Institute of Chemical Technology (KRICT), Republic of Korea

AF-MoP-23 Reaction Pathway of Copper Atomic Layer Deposition via Time-of-Flight Mass Spectrometry, *Camilla Minzoni, Caroline Hain, Krzysztof Mackosz,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland*; Andreas Werbrouck,* Thin Film Coatings and Materials Electrochemistry Lab, University of Missouri-Columbia, Missouri, USA*; Carla Frege,* ***Bensaoula Abdel,*** Tofwerk AG, Thun, Switzerland*; Patrik Hoffmann, Ivo Utke,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland

AF-MoP-24 Bimetal Thin Film Deposition Using Novel Organometallic Dinuclear RuCo Complex, ***Kazuaru Suzuki,*** *Tomohiro Tsugawa, Subhabrata Das, Yohei Uchiyama, Ryosuke Harada, Hirofumi Nakagawa,* Tanaka Precious Metal Technologies Co. Ltd.,, Japan

AF-MoP-25 Atomic Layer Deposition of Composition Engineered Nitrogen-Doped SnOX Films for Enhanced Performance of Thin-Film Transistor, *Han Jeong Hwan,* ***Lee Hyun Hak (Undergraduate),*** *Shin Jeong Eun, Lee Na Yeon,* Seoul National University of Science and Technology, Republic of Korea

AF-MoP-26 Atomic Layer Deposition of Molybdenum Using a Dual-Purpose Molybdenum Precursor for Advanced Metallization, ***David Mandia,*** *Matthew Griffiths, Youness Alvandi, Arya Shafiefarhood,* Lam Research Corporation

AF-MoP-27 Demonstration of ALD $Hf_xZr_{1-x}O_2$ Using Various Oxidant Sources Over Ultra-High Aspect-Ratio Structure for Memory Applications, *Dan Le,* ***Lorenzo Diaz,*** RASIRC*; Jin-Hyun Kim, Thi Thu Huong Chu, Soubhik De, Dushyant Narayan, Minjong Lee,* University of Texas at Dallas*; Walter Hernandez, Josh Garretson, Adrian Alvarez, Jeffrey Spiegelman,* RASIRC*; Jiyoung Kim,* University of Texas at Dallas

AF-MoP-28 Bottleneck-Effect on Thin-Film Conformality in High Aspect Ratio ALD, ***Mikko Utriainen,*** *Jussi KInnunen, Jani Karttunen, Feng Gao,* Chipmetrics, Finland*; Anish Philip,* Aalto University, Finland

AF-MoP-29 Low Temperature Deposition of SiO_2 and SiOC Films, ***Chad Brick,*** Gelest, Inc*; Tomoyuki Ogata,* Mitsubishi Chemical Corporation, Japan

AF-MoP-30 Vanadium-Sulphide Layers with Atomic Layer Deposition, ***Zsófia Baji,*** *Zsófia Bérces,* Centre for energy research, Hungary*; Zoltán Szabó, Zsolt Fogarassy, Péter Vancsó,* Centre for Energy Research, Hungary

AF-MoP-31 Film and Surface Stress Measurements during Tungsten Atomic Layer Deposition, ***Ryan B. Vanfleet (Graduate Student),*** *Steven M. George,* University of Colorado at Boulder

AF-MoP-32 Modifying Vanadium Oxide by Atomic Layer Plasma Treatment, ***Ritwik Bhatia,*** *Mohammad Saghayezhian,* Veeco Instruments*; Ganesh Sundaram,* Veeco

AF-MoP-33 Prediction of Adsorption/Desorption Equilibrium Constants and Surface Reaction Rate Constants Using Neural Network Potentials for ALD Process Design, ***Noboru Sato,*** *Naoki Tamaoki, Atsuhiro Tsukune, Yukihiro Shimogaki,* The University of Tokyo, Japan

AF-MoP-34 *In Situ* Synchrotron Hard X-Ray Scattering Studies of the Structural Evolution of InAlN During Growth by PEALD, ***Jeffrey Woodward,*** U.S. Naval Research Laboratory*; Kenneth Evans-Lutterodt,* Brookhaven National Laboratory*; David Boris, Michael Johnson,* U.S. Naval Research Laboratory*; Zachary Robinson,* University of Rochester Laboratory For Laser Energetics*; Ruipeng Li, Masafumi Fukuto,* Brookhaven National Laboratory*; Karl Ludwig,* Boston University*; Charles Eddy, Scott Walton,* U.S. Naval Research Laboratory

AF-MoP-35 Thermal ALD Vanadium Nitride (VN) as Next-Generation Electrode, ***Antony Jan,*** *Hae Young Kim,* Eugenus, Inc.

AF-MoP-36 ALD Synthesis of Transition Metal Phosphides, ***Raul Zazpe,*** *Jaroslav Charvot, Jhonatan Rodriguez-Pereira, Milan Klikar, Filip Bures, Jan Macak,* University of Pardubice, Czechia

AF-MoP-37 Atomic Layer Deposition of a Low Carbon Hafnium Oxide Using (2-methylindenyl)tris(dimethylamido)hafnium and Ozone, ***Drew Hood,*** *Rong Zhao,* Entegris

AF-MoP-38 Rapid Low-Temperature Atomic Layer Deposition of HfO_2, *Xianhu Liang, Volkmar Hock, Hartmut Buhmann,* ***Johannes Kleinlein,*** *Laurens W. Molenkamp,* University of Wuerzburg, Germany

AF-MoP-39 Innovative Advanced Deposition Material (ADM) Technique for Low-Resistivity, High-Conformality Metal and Barrier Thin Films, ***Kok Chew Tan,*** *Changbong Yeon, Deok Hyun Cho, Jung Hun Lim, Jaesun Jung,* Soulbrain, Republic of Korea

AF-MoP-40 Evaluation of a Hafnium Precursor with Higher Thermal Stability for the Atomic Layer Deposition of Hafnium Oxide Films, *Randall Higuchi,* ***Khang Ngo, Bhushan Zope,*** Merck KGaA, Darmstadt*; Joo-Yong Kim, Dong-Geun Lee,* Merck KGaA, Darmstadt, Republic of Korea

AF-MoP-41 Modulation of $Hf_xZr_{1-x}O_2$ Thin Film Characteristics via ALD and ALE, ***Ming-Kuan Fan (Graduate Student),*** National Tsing Hua University, Taiwan ; Taiwan Instrument Research Institute, Taiwan*; Yi-Cheng Chen,* National Tsing Hua University, Taiwan*; Chien-Wei Chen, Yang-Yu Jhang, Sheng-De Wong,* Taiwan Instrument Research Institute, Taiwan*; Hong-Luen Lin,* Tokyo Electron Taiwan Limited, Taiwan*; Ying-Hao Chu,* National Tsing Hua University, Taiwan

AF-MoP-42 Atomic Layer Deposition of Lanthanum Oxide Using New La Precursors, *Junhyun Song,* ***Seungmin Han,*** *Jungwon Hwang,* Air Liquide, Republic of Korea

AF-MoP-43 Ozone-Based Atomic Layer Deposition of Indium Oxide Thin Films: Impact on the Growth Rate and Its Uniformity of N_2 Supply in Ozone Generation, ***Seung-Youl Kang,*** *Jaehyun Moon,* Electronics and Telecommunication Research Institute (ETRI), Republic of Korea*; Changbong Yeon, Jaesun Jung,* Soulbrain Co., Ltd., Republic of Korea*; Jong-Heon Yang, Chi-Sun Hwang, Seong-Mok Cho, Yong Hae Kim, Jae-Eun Pi, Seong-Deok Ahn,* Electronics and Telecommunication Research Institute (ETRI), Republic of Korea

AF-MoP-44 Promising ALD Precursor for Next-Generation Circuit Material: A Novel Ru-Based ALD Precursor with Lower Vaporization Temperature, ***ziyu Yan,*** *Yong-Jay Lee,* Industrial Technology Research Institute, Taiwan

AF-MoP-45 Low-Temperature ALD of Silicon Nitride Films Using Dis and Tis Precursors: A Strategy for Substrate Protection and High-Density Films, ***Myeonghun Lee (Graduate Student),*** *Taeheon Kim, Minchan Kim, Changkyun Park, Jinseong Park,* Hanyang University, Korea

AF-MoP-46 Thermal Atomic Layer Deposition of Silicon Carbonitride Using Carbon-Containing Silicon Precursor, ***Okhyeon Kim (Graduate Student),*** *Tanzia Chowdhury, Mi-Soo Kim, Changgyu Kim, Hye-Lee Kim, Jeong Woo Han, Jae-Seok An, Jung Woo Park, Won-Jun Lee,* Sejong University, Republic of Korea

AF-MoP-47 Atomic Layer Deposition of High-Quality SnO Thin Films Using $Sn(EtCp)_2$ Precursor, ***Fumikazu Mizutani,*** *Nobutaka Takahashi,* Kojundo Chemical Laboratory Co., Ltd., Japan*; Tomomi Sawada,* National Institute for Materials Science,, Japan*; Toshihide Nabatame,* National Institute for Materials Science, Japan

AF-MoP-48 Damage-Free XPS Analysis of ALD HfO2, ZrO2 and HfZrOx Films Using Ar Cluster Ions, ***Seungwook Choi (Graduate Student),*** *Ansoon Kim,* Korea Research Instutue of Standards and Science (KRISS), Republic of Korea

AF-MoP-49 Steric Hindrance of Hf Precursors and Film Growth of HfO2 Atomic Layer Deposition: Comparative Kinetic Monte Carlo Simulation, ***Yanwei Wen,*** *Haojie Li, Bin Shan, Rong Chen,* Huazhong University of Science and Technology, China

AF-MoP-50 In-Situ Spectroscopic Ellipsometry for Transition Metal Oxide Growth Control in Remote Plasma ALD Processes , *Yousra Traouli, Ufuk Kilic,* University of Nebraska - Lincoln*; Mathias Schubert,* ***Eva Schubert,*** University of Nebraska-Lincoln, USA

AF-MoP-51 Plasma-Enhanced ALD Process for Boron Carbide Films: Towards Tunable B:C Ratio, ***Catherine Marichy,*** *Neil Richard Innis, Abdhulhamid Afolabi,* Universite Claude Bernard Lyon 1, CNRS, LMI UMR 5615, Villeurbanne, F-69100, France*; Olivier Boisron,* Universite Claude Bernard Lyon 1, CNRS, ILM, Villeurbanne, F-69100, France*; Didier Leonard,* Universite Claude Bernard Lyon 1, CNRS, ISA, Villeurbanne, F-69100, France*; Colin Bousige, Catherine Journet,* Universite Claude Bernard Lyon 1, CNRS, LMI UMR 5615, Villeurbanne, F-69100, France

AF-MoP-52 A Theoretical Study on High-Temperature ALD of TiN Using $CP(Ch_3)_5Ti(Ome)3$ as a Precursor, ***Jae Min Jang (Graduate Student),*** Hongik University, Republic of Korea*; Hye Won Park,* Incheon National University, Republic of Korea*; Soo-Hyun Kim,* Ulsan National Institute of Science and Technology, Republic of Korea*; Han-Bo-Ram Lee,* Incheon National University, Republic of Korea*; Bonggeun Shong,* Hongik University, Republic of Korea

AF-MoP-53 Adsorption of Hf Ald Precursor on Pristine HfO_2 Surface Without Hydroxyl Groups, ***Woong Pyo Jeon (Graduate Student)***, *Miso Kim, Jinwoo Lee, Bonggeun Shong,* Hongik University, Republic of Korea

AF-MoP-54 Sequential Adsorption of Dimethyl Zinc and Trimethylaluminum and Its Application to Zinc Aluminum Oxide Atomic Layer Deposition, *Haruto Suzuki, Satoshi Suzaki, Hibiki Takeda, Ryo Miyazawa, Bashir Ahmmad,* ***Fumihiko Hirose***, Yamagata University, Japan

AF-MoP-55 A Study on Laterally Controlled Distribution of Elements in InZnO Thin Films by Atomic Layer Modulation, ***Dong-Hyun Lim (Graduate Student)***, Ajou University, Republic of Korea; *Kyung-Won Park, Ji-Hye Choi,* ATIK CO., LTD., Republic of Korea; *Il-Kwon Oh,* Ajou University, Republic of Korea

AF-MoP-56 Comparative Study on the Impacts of Anhydrous and Hydrous H_2O_2 on ALD Hafnium Oxide Growth on Titanium Nitride Surface, ***Dan Le***, RASIRC; *Jin-Hyun Kim, Thi Thu Huong Chu, Soubhik De, Dushyant Narayan, Minjong Lee,* University of Texas at Dallas; *Walter Hernandez, Josh Garretson, Adrian Alvarez, Jeffrey Spiegelman,* RASIRC; *Jiyoung Kim,* University of Texas at Dallas

AF-MoP-57 Computation of Al_2O_3 ALD by Trimethylaluminum with Kinetic Monte Carlo and Neural Network Potential, ***Yichen Zou (Graduate Student)***, *Yuxuan Wu,* The University of Tokyo, China; *Jun Yamaguchi, Noboru Sato, Atsuhiro Tsukune, Yukihiro Shimogaki,* The University of Tokyo, Japan

AF-MoP-58 Comparison of ALD SiN Film Properties Based on Synthesis Precursor, Process Temperature, and Conditions, ***Jaeyoung Lim***, *Hanseong Kim, Sunki Min, Kang-sub Yim, Sun Jung Kim,* Samsung Electronics Semiconductor R&D center Semiconductor Processing Development, Republic of Korea

Atomic Layer Etching
Room Event Hall - Session ALE-MoP
Atomic Layer Etching Poster Session
5:45 – 7:00 pm

ALE-MoP-1 Study on High-Selectivity Atomic Layer Etching (ALE) of SiO_2/Si_3N_4 Using Ar/C_4F_6Plasma, *Kyongnam Kim,* Daejeon University, Republic of Korea; ***Jinwoo Choi (Graduate Student)***, Deajeon University, Republic of Korea; *ByeongHo Song, Jeongwoon Bae,* Daejeon University, Republic of Korea

ALE-MoP-2 Improving Process Stability in Atomic Layer Etching for Next-Generation Microfabrication, ***Suyoung Jang (Graduate Student)***, *Junyeob Lee, Dohyeon Kim, Jeongwoon Bae, Taehyung Kim, Kyongnam Kim,* Daejeon University, Republic of Korea; *Jihyun Kim,* WONIK IPS, Republic of Korea

ALE-MoP-3 Synergy in Thermal Atomic Layer Etching: Interplay between Individual Reactions, *Marcel Junige,* ***Andrew S. Cavanagh***, *Steven M. George,* University of Colorado Boulder

ALE-MoP-4 Atomic Layer Etching of ZrO_2, HfO_2 and $HfZrO_4$ Thin Films via Metal-Free Ligand Exchange using Hydrogen Fluoride and Acetylacetone, ***Kyoung-Mun Kim***, *Joo-Yong Kim,* Merck KGaA, Darmstadt, Republic of Korea

ALE-MoP-5 Isotropic Atomic Layer Etching of Crystalline HfO_2 Thin Films Using F Radical and $Al(CH3)_2Cl$, ***Jehwan Hong (Graduate Student)***, *Gyejun Cho, Changgyu Kim, Hye-Lee Kim,* Sejong University, Republic of Korea; *Byungchul Cho, Min Su Kim, Ju Hwan Park, Min Kim,* Wonik IPS, Republic of Korea; *Won-Jun Lee,* Sejong University, Republic of Korea

ALE-MoP-6 Atomic Layer Etching of Al2O3 Film by Using Different Metal Precursor for Ligand Exchange, ***Chan Lee***, *Chang Kyu Lee, Byung Chul Cho, Ju Hwan Park, Min Kim,* WONIK IPS, Republic of Korea; *Misoo Kim, Khabib Khumaini, Hye-Lee Kim, Won-Jun Lee,* Sejong University, Republic of Korea

ALE-MoP-7 Fabrication of Ultrathin Ruthenium Films via a Top-Down Approach Using Thermal Atomic Layer Etching, *Jeong Hwan Han,* ***Eun Ji Ju (Graduate Student)***, *Jae Hyeon Lee,* Seoul National University of Science and Technology, Republic of Korea

ALE-MoP-8 Thermal Atomic Layer Etching of ZrO_2 Using Chlorine-Based Precursor, *Sang-ik Lee,* ***Yong-won Kim***, DNF Co., Ltd, Republic of Korea; *jun-hee Cho, Joong-jin Park,* DNF Co., Ltd., Republic of Korea

ALE-MoP-9 Highly Precise Atomic Layer Etching of SiO_2 with SF_6 Radicals and TMA Surface Modification, ***Min Kyun Sohn***, *Seong Hyun Lee, Jieun Kim, Sun Kyu Jung, Min-A Park, Jin Ha Kim, Jaeseoung Park, Jeong Woo Park, Dongwoo Suh,* ETRI, Republic of Korea

ALE-MoP-10 Plasma Atomic Layer Etching of SiO_2, Si_3N_4, and Si by Forming Ammonium Fluorosilicate Followed by Argon Ion Bombardment, *Heeyeop Chae,* ***Taeseok Jung (Graduate Student)***, *Hyeongwu Lee, Hojin Kang, Minsung Jeon,* Sungkyunkwan University (SKKU), Republic of Korea

ALE-MoP-11 Tailored Waveforms for Ion Energy Control in Ale Applications, *Sebastian Mohr,* Quantemol.Ltd, Germany; ***HyungSeon Song***, Quantemol.Ltd, Republic of Korea

ALE-MoP-12 Understanding Fluorocarbon Thin Film Growth through CF_xRadical Adsorption on Amorphous Si_3N_4, ***Mihyeon Jo (Graduate Student)***, *Sangheon Lee,* Ewha Womans University, Republic of Korea

ALE-MoP-13 Study of Low GWP Gas Decomposition and Fluorocarbon Film Created gas Deposition on SiO_2, ***Minji Kim (Undergraduate)***, *Sangheon Lee,* Ewha Woman's University, Republic of Korea

Nanostructure Synthesis and Fabrication
Room Event Hall - Session NS-MoP
Nanostructure Synthesis and Fabrication Poster Session
5:45 – 7:00 pm

NS-MoP-1 Structural Modifications of Porous Templates with Pbte ALD Coatings, *Haifeng Cong,* ***Helmut Baumgart***, Old Dominion University

NS-MoP-2 Area-Selective Solid-State Synthesis of Nickel Silicide Nanostructures, ***Gabriele Botta***, Nanogune, Italy; *Mato Knez,* nanogune, Croatia

NS-MoP-3 Atomic Layer Deposition by Pressure-Driven Convective Flow Through 3D Nanocomposite Structures, ***Austin Cendejas***, *Benjamin Greenberg, Kevin Anderson, Boris Feygelson,* US Naval Research Laboratory

NS-MoP-4 Atomic Layer Deposition for Novel Nanocomposite Solids with New Functionalities, ***Boris Feygelson***, *Benjamin Greenberg, Kevin Anderson, James Wollmershauser,* U.S. Naval Research Laboratory; *Austin Cendejas,* American Society of Engineering Education, postdoc residing at U.S. Naval Research Lab; *Sarshad Rommel, Mark Aindow,* Department of Materials Science and Engineering, Institute of Materials Science, University of Connecticut

NS-MoP-5 Nanostructure and Conductivity of SiO2/ZnO:Al Nanocomposites Fabricated by ALD Infiltration and Pressure-Assisted Sintering, ***Benjamin Greenberg***, *Kevin Anderson, Alan Jacobs, Joseph Prestigiacomo, Zoey Warecki, Todd Brintlinger,* U.S. Naval Research Laboratory; *Austin Cendejas,* ASEE Fellow Residing at U.S. Naval Research Laboratory; *Eric Patterson, James Wollmershauser, Boris Feigelson,* U.S. Naval Research Laboratory

NS-MoP-6 Creation of Nanowire-Bundled Grain Boundaries in Bi_2Te_3-Based Thermoelectric Materials via Atomic Layer Deposition, ***Gwang Min Park (Graduate Student)***, *Seunghyeok Lee,* Korea Institute of Science and Technology (KIST), Republic of Korea; *Jinseok Hong, Seokho Nahm,* Hanyang University, Korea; *Seung-Hyub Baek, Jin-Sang Kim,* Korea Institute of Science and Technology (KIST), Republic of Korea; *Seung-Yong Lee,* Hanyang University, Korea; *Seong Keun Kim,* Korea Institute of Science and Technology (KIST), Republic of Korea

NS-MoP-7 Surface Engineered Polymeric Membranes for Improved Fouling Resistance and Superior Oil-Water Separation, *Bratin Sengupta, Yining Liu, Seth Darling,* ***Jeffrey Elam***, Argonne National Laboratory

NS-MoP-8 Interface Engineering of 2D MoS_2 Devices through ALD Oxidant Selection, ***Si Eun Yu (Graduate Student)***, *Thi Thu Huong Chu, Minjong Lee, Dushyant M. Narayan, Doo San Kim, Dan N. Le,* University of Texas at Dallas; *Rino Choi,* Inha University, Republic of Korea; *Jiyoung Kim,* University of Texas at Dallas

Tuesday Morning, June 24, 2025

	Room Halla Hall AB	
8:00am	**AF1-TuM-1** The Mechanism of Thermal ALD of Silicon Carbonitride from Chloroalkylsilanes and Ammonia – Theory Meets Experiment, ***Simon Elliott***, Schrödinger, Ireland; *Jiyeon Kim, Paul Lemaire, Dennis Hausmann,* Lam Research	**ALD Fundamentals** **Session AF1-TuM** **Mechanism and Theory I** **Moderators:** **Christophe Vallée**, University of Albany, **Charles H. Winter**, Wayne State University
8:15am	**AF1-TuM-2** Mechanistic Studies on Area Selective ALD of Iridium, ***Heta-Elisa Nieminen***, *Matti Putkonen, Mikko Ritala,* University of Helsinki, Finland	
8:30am	**AF1-TuM-3** ALD Outstanding Presentation Award Finalist: Like Boots or Hearts: The Kinetics of Precursor Decomposition, ***Sean Barry***, Carleton University, Canada	
8:45am	**AF1-TuM-4** Reaction Mechanism of Atomic Layer Deposition of Zirconium Oxide Using Tris(dimethylamino)cyclopentadienyl Zirconium, ***Yong Richard Sriwijaya (Graduate Student)***, *Hye-Lee Kim, Okhyeon Kim, Khabib Khumaini,* Sejong University, Republic of Korea; *Romel Hidayat,* PT PLN, Indonesia; *Won-Jun Lee,* Sejong University, Republic of Korea	
9:00am	**AF1-TuM-5** A Study on the Correlation of Surface Chemistry to Electrical Properties of Ultra-thin Oxide Semiconductors by Atomic Layer Deposition: A Case Study of Indium Oxides Thin Films, ***Joohyeon Lee (Graduate Student)***, Ajou University, Republic of Korea; *Dohee Kim, Ja Yong Kim, Jong Young Lee, Seung Wook Ryu,* SK Hynix, Korea; *Il Kwon Oh,* Ajou University, Republic of Korea	
9:15am	**AF1-TuM-6** Catalytic Role of Silane(SiH4) in Enhancing Titanium Nitride(TiN) Atomic Layer Deposition(ALD), ***Hu Li***, Tokyo Electron America Inc.; *Taichi Monden, Masaaki Matsukuma,* Tokyo Electron Technology Solutions Ltd., Japan; *Jianping Zhao,* Tokyo Electron America Inc.; *Yoshitada Morikawa,* Osaka University, Japan; *Peter Ventzek,* Tokyo Electron America Inc.	
9:30am	**AF1-TuM-7** Correlation of Hydroxyl Group and Growth Characteristics in Atomic Layer Deposition of Ternary Oxide Depending on Growth Temperature, ***Sanghun Lee (Graduate Student)***, Yonsei University, Republic of Korea; *Il-Kwon Oh,* Ajou University, Republic of Korea; *Hyungjun Kim,* Yonsei University, Republic of Korea	
9:45am	**AF1-TuM-8** Atomistic Modeling of Oxygen Recombination Reactions in the ALD of SiO_2 and Al_2O_3, *Suresh Kondati Natarajan,* Synopsys Inc., Denmark; *Rafshan Ul Atik,* Synopsys India Pvt. Ltd., India; ***Yong-Ju Kang***, Synopsys Korea Inc., Republic of Korea; *Jess Wellendorff, Søren Smidstrup,* Synopsys Denmark ApS, Denmark	
10:00am	**BREAK & EXHIBITS**	
10:45am	**AF2-TuM-12** Screening Volatile Metal Complex for ALD Precursor by Modified COSMO-SAC Method and Estimating Its Reactivity by Atomistic Simulator Using Neural Network Potential, ***Noboru Sato***, The University of Tokyo, Japan; *Naoyuki Hoshiya, Akiyoshi Yamauchi, Shigehito Sagisaka, Yosuke Kishikawa,* DAIKIN INDUSTRIES, LTD., Japan; *Yuxuan Wu, Jun Yamaguchi, Atsuhiro Tsukune, Yukihiro Shimogaki,* The University of Tokyo, Japan	**ALD Fundamentals** **Session AF2-TuM** **Mechanism and Theory II** **Moderators:** **Atsushi Sakurai**, ADEKA CORPORATION, Japan, **Tania Sandoval**, Technical University Federico Santa Maria, Chile
11:00am	**AF2-TuM-13** Ion Effects on Plasma-induced Surface Composition Changes during SiCN Atomic Layer Deposition: A Combined Ab-Initio and Monte Carlo Approach, ***Ting-Ya Wang (Graduate Student)***, University of Texas at Austin, Taiwan; *Hu Li,* Tokyo Electron America, Inc., China; *Peter Ventzek, Jianping Zhao,* Tokyo Electron America, Inc.; *Gyeong Hwang,* University of Texas at Austin, Korea (Democratic People's Republic of)	
11:15am	**AF2-TuM-14** Benchmarking Large Language Models for Atomic Layer Deposition, ***Angel Yanguas-Gil***, *Matthew Dearing, Jeffrey Elam, Jessica Jones, Sungjoon Kim, Adnan Mohammad, Chi Thang Nguyen, Bratin Sengupta,* Argonne National Laboratory	
11:30am	**AF2-TuM-15** Adsorption State Study of Trimethylaluminum Using Neural Network Potential Computation and High Accuracy in-situ Quartz Crystal Microbalance, ***Yuxuan Wu (Graduate Student)***, The University of Tokyo, Japan, China; *Jun Yamaguchi, Noboru Sato, Atsuhiro Tsukune, Yukihiro Shimogaki,* The University of Tokyo, Japan	
11:45am	**AF2-TuM-16** Atomistic Insights into the Surface Chemistry Driving ALD of IGZO Films from First-Principles and Machine-Learning Simulations, ***Alex Watkins (Graduate Student)***, University of Warwick, UK	

Tuesday Morning, June 24, 2025

	Room Samda Hall AB	
8:00am	**INVITED: ALE1-TuM-1** Thermal Atomic Layer Etching in Next Generation 3D Devices, ***Younghee Lee,*** Lam Research Corporation	**Atomic Layer Etching** **Session ALE1-TuM** **Thermal Gas Phase ALE** **Moderators:** **Steven M. George**, University of Colorado at Boulder, **Chanmin Lee**, Samsung Electronics, Republic of Korea
8:30am	**ALE1-TuM-3** Atomic Layer Etching of SiCO Films with Surface Modification by O_2 and CF_4/NH_3/Ar Plasmas and Desorption by IR Annealing, ***Nicholas McDowell,*** Hitachi High Technologies America Inc.*; Nobuya Miyoshi,* Hitachi, Ltd., Japan*; Phuc Phan, Ritchie Scott-McCabe,* Hitachi High Technologies America Inc.*; Hiroyuki Kobayashi,* Hitachi High Technologies, Japan	
8:45am	**ALE1-TuM-4** Thermal Atomic Layer Etching of Mo with $NbCl_5$ and O_2, ***Juha Ojala (Graduate Student),*** *Mykhailo Chundak, Anton Vihervaara, Marko Vehkamäki, Mikko Ritala,* University of Helsinki, Finland	
9:00am	**ALE1-TuM-5** Film and Surface Stress During Thermal Atomic Layer Etching of Al_2O_3 and Tungsten, ***Ryan B. Vanfleet (Graduate Student),*** *Steven M. George,* University of Colorado at Boulder	
9:15am	**ALE1-TuM-6** The Invention of Atomic Layer Etching: on the Conception of Cycled Exposures of Silicon to Halogens and Pulses of Heat, Ions, and More, by Seiichi Iwamatsu, *Fred Roozeboom,* University of Twente, Netherlands*; **Dmitry Suyatin**, Jonas Sundqvist,* AlixLabs A.B., Sweden*; Kuniyuki Kakushima,* Tokyo Institute of Technology, Japan	
9:30am	**ALE1-TuM-7** Isotropic Atomic Layer Etching of HfO_2 using Plasma Fluorination with NF_3 and Ligand Exchange with BCl_3, ***Hyeongwu Lee (Graduate Student),*** *Heeju Ha, Daeun Hong, Heeyeop Chae,* Sungkyunkwan University (SKKU), Republic of Korea	
9:45am		
10:00am	**BREAK & EXHIBITS**	
10:45am	**INVITED: ALE2-TuM-12** Enhancing 3D NAND Flash Memory Production: Addressing High Aspect Ratio Etching Challenges with Atomic Layer Etching, ***Jaewon Lee,*** *Huichan Seo,* SK hynix Inc., Republic of Korea	**Atomic Layer Etching** **Session ALE2-TuM** **ALE Applications I** **Moderators:** **Eric A. Joseph**, IBM Research Division, T.J. Watson Research Center, **Jonas Sundqvist**, BALD Engineering AB, Sweden
11:15am	**ALE2-TuM-14** Controlled Electron-Enhanced Silicon Etching with H_2 Background Gas and Positive Sample Voltage, *Sumaira Yasmeen,* University of Colorado at Boulder*; Harsono Simka,* Samsung Semiconductor*; **Steven George**,* University of Colorado at Boulder	
11:30am	**ALE2-TuM-15** Suppressing Surface Roughness in Tungsten Wet Atomic Layer Etching using Halogenation, ***Tulashi Dahal,*** *Kate Abel,* Tokyo Electron America Inc.,*; Karthik Pillai,* TEL Technology Center, America, LLC*; Trace Hurd, Antonio Rotondaro,* Tokyo Electron America Inc.,	
11:45am	**ALE2-TuM-16** Plasma-Enhanced Isotropic Atomic Layer Etching of Molybdenum with Fluorocarbon Layer Formation Followed by Plasma Oxidation, ***Heeju Ha (Graduate Student),*** *Hyeongwu Lee, Heeyeop Chae,* Sungkyunkwan University (SKKU), Republic of Korea	

Tuesday Morning, June 24, 2025

	Room Tamna Hall A	
8:00am	**AA1-TuM-1** Effect of Ga Doping on Coercive Field Reduction and Endurance Enhancement in Atomic Layer Deposited HfO2-based Thin Film for FeRAM Applications, ***Zi-Ying Huang***, *Yu-Chun Li,* Fudan University, China*; Ming Li,* Peking University, China*; Ye Zhu,* Hong Kong Polytechnic University, China*; David Wei Zhang, Hong-Liang Lu,* Fudan University, China	**ALD Applications** **Session AA1-TuM** **Memory Applications II** **Moderators:** **Pinyen Lin**, TSMC, Taiwan, **Seung Wook Ryu**, SK Hynix, Republic of Korea
8:15am	**AA1-TuM-2** Realizaton of Selector-Only Memory via Supercycle Atomic Layer Deposition of Ge-Sb-Se Ternary Alloy, ***Jeongwoo Seo (Graduate Student)***, *Minu Cho, Inkyu Sohn,* Yonsei University, Korea*; Youngjae Kang, Jong-bong Park, Kiyeon Yang, Wooyoung Yang,* Samsung Advanced Institute of Technology, Republic of Korea*; Hyungjun Kim,* Yonsei University, Korea	
8:30am	**AA1-TuM-3** Atomic-Scale Thickness Control of Antiferroelectric ZrO_2 via Morphotropic Phase Boundary Engineering for Enhanced Ferroelectricity, ***Chun-Ho Chuang (Graduate Student)***, *Ting-Yun Wang, Yu-Sen Jiang, Miin-Jang Chen,* Department of Materials Science and Engineering, National Taiwan University, Taiwan	
8:45am	**AA1-TuM-4** Metastable Rutile TiO2 Growth on Non-Lattice-Matched Substrates via a Sacrificial Layer Strategy, ***Jeon Jihoon***, *Kim Seong Keun,* Korea Institute of Science and Technology (KIST), Republic of Korea	
9:00am	**AA1-TuM-5** EWF Modulation and Electrical Performance Enhancement Using Fluorine Surface Treatment in Yttrium Oxide-based Dipole-First Gate Stack, ***Sangkuk Han (Graduate Student)***, *Changhwan Choi, Wonjae Choi,* Hanyang University, Korea	
9:15am	**AA1-TuM-6** Reconfigurable Memristor Crossbar for Graphlet Computing, ***Kyung Seok Woo***, Sandia National Laboratories*; Nestor Ghenzi,* Seoul National University*; Hyungjun Park,* Seoul National University, Republic of Korea*; A. Alec Talin,* Sandia National Laboratories*; Cheol Seong Hwang,* Seoul National University, Republic of Korea*; R. Stanley Williams, Suhas Kumar,* Sandia National Laboratories	
9:30am	**AA1-TuM-7** Tuning of Effective Work Function in Cl Free TiAlN ALD Through Fine Al Doping Process for Gate Electrode Application, ***Gyeong Min Jeong (Graduate Student)***, *Hae Dam Kim, Jin-Seong Park,* Hanyang University, Republic of Korea	
9:45am	**AA1-TuM-8** Optimizing Grain Structure in Mo-Ru Alloys for High Conductivity, *Changhwan Choi,* ***Hyunjin Lim (Graduate Student)***, *Youngseo Na, Yeh Been Im,* Hanyang University, Korea	
10:00am	**BREAK & EXHIBITS**	
10:45am	**AA2-TuM-12** Defect-free Carbon based EUV Pellicle by using Bi-layer Capping with Atomic Layer Deposition, ***Park Jihoon (Undergraduate)***, *Yoon Hwi,* Yonsei University, Korea*; Wi Seong Ju, Lee Yunhan, Lee Byunghoon, Bae Sukjong, Choi Jin,* Samsung Electronics, Republic of Korea*; Kim Hyungjun,* Yonsei University, Korea	**ALD Applications** **Session AA2-TuM** **EUV and Patterning Applications** **Moderators:** **Jiyoung Kim**, University of Texas at Dallas, **Hanjin Lim**, Samsung Electronics Co., Inc., Republic of Korea
11:00am	**AA2-TuM-13** Three-Step Plasma-Enhanced ALD of Ultra-Thin SiNx with Enhanced Etch Resistance for EUV Pellicle Applications, ***Hye-Young Kim (Undergraduate)***, *Hyun-Mi Kim, Yoonjeong Shin, Jonghyuk Yoon,* Korea Electronics Technology Institute, Republic of Korea*; Ji-Beom Yoo,* Sungkyunkwan University (SKKU), Republic of Korea*; Seul-Gi Kim, Hyeongkeun Kim,* Korea Electronics Technology Institute, Republic of Korea	
11:15am	**AA2-TuM-14** Mo_2C-Coated CNT with Hydrogen Radical Resistance for EUVL Pellicles, *Hyeongkeun Kim,* ***Su Min Lee***, *Yongkyung Kim Kim, Jonghyuk Yoon, Kihun Seong, Heongyu Lee, Sun Gil Kim, Hyun-Mi Kim,* Korea Electronics Technology Institute (KETI), Republic of Korea*; Gu Young Cho,* Dankook University, Republic of Korea*; Seul-Gi Kim,* Korea Electronics Technology Institute (KETI), Republic of Korea	
11:30am	**AA2-TuM-15** ALD Outstanding Presentation Award Finalist: Vapor-Phase Infiltration of Hafnium in Poly(Methyl Methacrylate) Thin Films for Extreme Ultraviolet Lithography Applications, *Md Istiaque Chowdhury, Xinpei Wu,* Brookhaven National Laboratory*; Won-Il Lee, Mueed Ahmad,* Stony Brook University*; J. Anibal Boscoboinik, Kim Kisslinger, Aaron Stein, Nikhil Tiwale,* Brookhaven National Laboratory*; Jiyoung Kim,* University of Texas at Dallas*;* ***Chang-Yong Nam***, Brookhaven National Laboratory	
11:45am	**AA2-TuM-16** Atomic Layer Deposition and Atomic Layer Etch cycles to minimize “Mushroom Growth” effect in Area Selective Atomic Layer Deposition, ***Birol Kuyel***, *Joe Alex,* NANO-MASTER	

	Room Tamna Hall B	
8:00am	**AF3-TuM-1** ALD of SnO_2 Thin Films using Tin(IV) Acetate as a Novel Precursor, ***Anjan Deb (Graduate Student)***, *Miika Mattinen, Mikko J. Heikkilä, Mykhailo Chundak, Anton Vihervaara, Kenichiro Mizohata, Mikko Ritala, Matti Putkonen,* University of Helsinki, Finland	**ALD Fundamentals** **Session AF3-TuM** **Precursor Chemistry II** **Moderators:** **Venkateswara Pallem**, AirLiquide, **Paul Williams**, Pegasus Chemicals
8:15am	**AF3-TuM-2** Bridging the Gap: Volachem's Mission to Advance ALD Precursor Development, ***Martin Wilken***, *Dominik Naglav-Hansen, Andreas Ostendorf,* Ruhr Universität Bochum, Germany; *Anjana Devi,* Leibniz Institute for Solid State and Materials Research, Germany	
8:30am	**AF3-TuM-3** Revealing the Effect of Defect and Hydrogenation on Borazine-based Atomic Layer Deposition using First Principles Calculations, ***Tsung-Hsuan Yang***, Tokyo Electron America; *Gyeong Hwang,* University of Texas at Austin; *Hu Li, Jianping Zhao, Peter Ventzek,* Tokyo Electron America	
8:45am	**AF3-TuM-4** Novel Heteroleptic Precursors for Oxide Semiconductor Films (In-, Ga-, Zn-, Sn-Ox), Aimed at Co-dosing Process and Cocktail Precursor, ***Nana Okada***, *Ryota Fukushima, Keisuke Takeda, Masaki Enzu, Tomoharu Yoshino, Atsushi Yamashita, Yoshiki Oe, Akio Saito, Yutaro Aoki, Akihiro Nishida, Atsushi Sakurai,* ADEKA CORPORATION, Japan	
9:00am	**AF3-TuM-5** Investigation of Fluorinated Copper and Gold Alkoxides as Precursors for Atomic Layer Deposition, ***Nick A. Hoffman (Graduate Student)***, *David J. H. Emslie,* McMaster University, Canada	
9:15am	**AF3-TuM-6** ALD of Al_2O_3 for Gas Barrier Applications: Impact of Al Precursors, ***Jean-Pierre Glauber (Graduate Student)***, Leibniz Institute for Solid State and Materials Research, Germany; *Maximilian Gebhard, Lukas Mai,* Ruhr University Bochum, Germany; *Harish Parala, Anjana Devi,* Leibniz Institute for Solid State and Materials Research, Germany	
9:30am	**AF3-TuM-7** Atomic Layer Deposition of Nb_2O_5 using New Nb Precursor, ***Daehyeon Kim***, *Suhyun Kim, Jinhyung Park,* Air Liquide, Republic of Korea	
9:45am	**AF3-TuM-8** Atomic Layer Deposition of Mo Thin Film using Metal Organic Mo Precursor, *Han-Bo-Ram Lee, Bonwook Gu,* Incheon National University, Republic of Korea; *T. Barry Sean, Kieran Lawford,* Carleton University, Canada; ***Kwangyong An (Undergraduate)***, incheon National University, Republic of Korea	
10:00am	**BREAK & EXHIBITS**	
10:45am	**INVITED: EM-TuM-12** Zeolite-Like Frameworks Created by ALD/MLD as an All-Dry Resist Technology, ***Howard Fairbrother***, Department of Chemistry, Johns Hopkins University; *Peter Corkery, Kayley Waltz,* Department of Chemical and Biomolecular Engineering, Johns Hopkins University; *Patrick Eckhert,* Department of Chemistry, Johns Hopkins University; *Michael Tsapatsis,* Department of Chemical and Biomolecular Engineering, Johns Hopkins University	**Emerging Materials** **Session EM-TuM** **Molecular Layer Deposition & Hybrid Materials I** **Moderators:** **Jin-Seong Park**, Hanyang University, Republic of Korea, **Henrik Pedersen**, Linköping University, Sweden
11:15am	**EM-TuM-14** Atomic Layer Regulation of MIL-53 Metal-Organic Framework as Interconnect Low-k Dielectrics, ***Fan Yang***, Luoyu Road 1037, Wuhan, China; *Jisheng Song, Rong Chen,* Huazhong University of Science and Technology, China	
11:30am	**EM-TuM-15** Nanolaminated Films with Negative Capacitance Fabriacted by ALD, ***Xiang Yang Kong***, School of Materials Science Engineering Shanghai Jiao Tong University, Shanghai 200240, China	
11:45am	**EM-TuM-16** Thermal Annealing of Molecular Layer-Deposited Tincone : Unveiling Sulfur's Structural Impacts in Graphitic Carbon Formation, *Jin-Seong Park,* ***Gi-Beom Park (Graduate Student)***, *Hyolim Jung, Hae Lin Yang, Ji-Min Kim,* Hanyang University, Korea	

Tuesday Afternoon, June 24, 2025

	Room Halla Hall AB	
1:30pm	**AF1-TuA-1** Interface Evolution in ALD of HfO_2 on TiN: LEIS and XPS in Vacuo Studies, ***Mykhailo Chundak***, *Heta-Elisa Nieminen, Marko Vehkamäki, Laura Keränen, Matti Putkonen, Mikko Ritala,* University of Helsinki, Finland	**ALD Fundamentals** **Session AF1-TuA** **Analysis** **Moderators:** **Christophe Detavernier**, Ghent University, Belgium, **Adrie Mackus**, Eindhoven University, Netherlands
1:45pm	**AF1-TuA-2** In Situ Ambient Pressure X-ray Photoelectron Spectroscopy Study of Atomic Layer Deposition of Hafnium Oxide on (Ag,Cu)(In,Ga)Se_2 Absorbers Relevant for Thin Film Solar Cells, ***Natalia M. Martin***, Uppsala University, Angstrom Laboratory, Sweden	
2:00pm	**AF1-TuA-3** Development of a Home-Built Atomic Layer Deposition Reactor for *in-Situ* Synchrotron GISAXS and XAS Characterization, ***Marina Armengol-Profitós***, *Jordi Prat, Montserrat Prieto, Zbigniew Reszela, Cristián Huck-Iriart, Massimo Tallarida, Eduardo Solano, Carlos Escudero,* ALBA synchrotron light source, Spain	
2:15pm	**AF1-TuA-4** Evaluation of Initial Nucleation of Co-ALD by CCTBA Using in-Situ Reflectance Monitoring and Atomistic Simulator Based on Neural Network Potential, ***Naoki Tamaoki***, The University of Tokyo, Japan; *Yubin Deng,* The University of Tokyo, China; *Jun Yamaguchi, Noboru Sato, Atsuhiro Tsukune, Yukihiro Shimogaki,* The University of Tokyo, Japan	
2:30pm	**AF1-TuA-5** Low Energy Ion Scattering Analysis of GC/IrOX /SiO_2 Layer Structure, ***Philipp Brüner***, *Thomas Grehl,* IONTOF GmbH, Germany; *Rens Kamphorst, Katherine S. Encalada Flores, Ruud Kortlever, Ruud van Ommen,* TU Delft, Netherlands	
2:45pm	**AF1-TuA-6** Tailoring Interface and Bulk Properties: An Oxidant Co-Dosing Approach to ALD Growth of Hafnia Thin Films, ***Dushyant Narayan***, *Dan Le, Soham Shirodkar, Soubhik De, Geon Park, Minjong Lee, Thi Thu Huong Chu, Jin-Hyun Kim,* The University of Texas at Dallas; *Walter Hernandez, Adrian Alvarez, Josh Garretson, Jeffrey Spiegelman,* RASIRC; *Jiyoung Kim,* The University of Texas at Dallas	
3:00pm	**AF1-TuA-7** Mechanical Properties and Wear Resistance of Atomic Layer Deposited Ternary Cr-Hf-O Films: A Comparative Study with Binary Chromium Oxide and Hafnium Oxide Films, ***Mahtab Salari Mehr (Graduate Student)***, *Lauri Aarik, Taivo Jõgiaas, Hugo Mändar,* University of Tartu, Estonia	
3:15pm	**AF1-TuA-8** In-situ X-ray photoelectron spectroscopy for determining oxidation state, composition, and morphology of ALD-based CeO_x, SnO_x, and $Ce_xSn_{1-x}O_y$ deposits, ***Rudi Tschammer (Graduate Student)***, *Dominic Guttmann,* BTU Cottbus, Germany; *Marcel Schmickler, Anjana Devi,* Leibniz Institute for Solid State and Materials Research, Germany; *Karsten Henkel, Carlos Morales, Jan Ingo Flege,* BTU Cottbus, Germany	
3:30pm	**BREAK & EXHIBITS**	
4:00pm	**AF2-TuA-11** Controlling the Crystalline Nature of PEALD Thin Films Through Tuning of Plasma Characteristics, ***Peter Litwin***, Naval Research Laboratory, USA; *Marc Currie, Neeraj Nepal, Maria Sales, David Boris,* US Naval Research Laboratory; *Michael Johnson,* Naval Research Laboratory, USA; *Scott Walton, Virginia Wheeler,* US Naval Research Laboratory	**ALD Fundamentals** **Session AF2-TuA** **Plasma ALD** **Moderators:** **Ruud van Ommen**, Delft University of Technology, Netherlands, **Seung-Yeul Yang**, Samsung, Republic of Korea
4:15pm	**AF2-TuA-12** Comparative Study of CeO_2 Thin Films Prepared by Plasma-Enhanced and Thermal Atomic Layer Deposition Using a New Liquid Ce Precursor, ***Yewon Seo (Graduate Student)***, *Sang Bok Kim, Soo-Hyun Kim,* Graduate School of Semiconductor Materials and Devices Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Republic of Korea	
4:30pm	**AF2-TuA-13** Tuning Crystallinity of Plasma-Enhanced Atomic Layer Deposited Aluminum Nitride Thin Films using an Electron Cyclotron Resonance Microwave Source, ***Julian Pilz***, *Tai Nguyen,* Silicon Austria Labs, Austria; *Paul Dreher,* Evatec AG, Switzerland; *Marco Deluca,* Silicon Austria Labs, Austria	
4:45pm	**AF2-TuA-14** Plasma-Enhanced Atomic Layer Deposition of High-Quality InN Thin Films Using a Novel In Precursor and NH_3 Plasma, ***Yejun Kim (Graduate Student)***, *Chaehyun Park, Minjeong Kweon, Soo-Hyun Kim,* Ulsan National Institute of Science & Technology, Republic of Korea	
5:00pm	**AF2-TuA-15** Insights Into Tuning TiO_2 Film Property Distribution in 3D Structures During Peald Process, ***Takashi Hamano***, *Nobuyuki Kuboi, Hiroyasu Matsugai, Shoji Kobayashi, Yoshiya Hagimoto, Hayato Iwamoto,* Sony Semiconductor Solutions Corporation, Japan	
5:15pm	**AF2-TuA-16** The Application of Diiodosilane to Deposit SiN Film as Insulation Layer, ***YUN-CHIH Chiang (Graduate Student)***, *Yong-Jay Lee,* Industrial Technology Research Institute, Taiwan	

	Room Samda Hall AB	
1:30pm	**INVITED: ALE1-TuA-1** Isotropic and Anisotropic ALE: Tool Aspects, Processes, and Applications, ***Harm Knoops,*** Oxford Instruments Plasma Technology, UK	**Atomic Layer Etching** **Session ALE1-TuA** **ALE Tools & ALE Modeling** **Moderators:** **Satoshi Hamaguchi**, Osaka University, Japan, **Dmitry Suyatin**, AlixLabs A.B., Sweden
2:00pm	**ALE1-TuA-3** Study on Plasma Induced Damaged Layer Formation Using Molecular Dynamics, ***Junghwan Um,*** *Sung-Il Cho,* Samsung Electronics Co., Republic of Korea	
2:15pm	**ALE1-TuA-4** Theoretical Analysis on Crystalline Phase-Dependent Surface Fluorination of HfO_2 for Atomic Layer Etching, ***Sujin Kwon (Graduate Student),*** *Bonggeun Shong,* Hongik University, Republic of Korea	
2:30pm	**ALE1-TuA-5** Removal Reaction Mechanisms During Thermal Atomic Layer Etching of Aluminum Oxide: A First-Principles Study, ***Khabib Khumaini,*** *Gyejun Cho, Hye-Lee Kim, Won-Jun Lee,* Sejong University, Republic of Korea	
2:45pm	**ALE1-TuA-6** Multiscale Modeling of Gallium Nitride Atomic Layer Etching in Chlorinated Plasmas: A Combined Dynamic Global Model, Ab-initio and Kinetic Monte Carlo Approaches, ***Tojo Rasoanarivo (Graduate Student),*** *Cédric Mannequin, Isabelle Braems,* Institut des Matériaux de Nantes Jean Rouxel, France*; Fabrice Roqueta, Mohamed Boufnichel,* STMicroelectronics, France*; Ahmed Rhallabi,* Institut des Matériaux de Nantes Jean Rouxel, France	
3:00pm	**ALE1-TuA-7** Utilization of Molecular Dynamics Simulations and a Reduced Order Model to Analyze the Atomic Layer Etching Window of the Si-Cl2-Ar+ System, ***Joseph Vella,*** TEL Technology Center, America, LLC, USA*; David Graves,* Department of Chemical and Biological Engineering, Princeton University	
3:15pm	**ALE1-TuA-8** Characteristics of the Power Delivery System of Transformer-Coupled Plasma Source for Remote Plasma Process in Semiconductor Manufacturing, *Tae S. Cho,* ***Hakmin Kim,*** *Giwon Shin, Jaehoon Choi, Sooyoung Hwang, Jihyun Kim,* Wonik IPS, Republic of Korea	
3:30pm	**BREAK & EXHIBITS**	
4:00pm	**ALE2-TuA-11** Development of an Atomic Layer Etching Process Dedicated to Diamond Material, ***Marine Régnier (Graduate Student),*** Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel; Institute of Applied Physics, University of Tsukuba; Japanese-French Laboratory for Semiconductor Physics and Technology J-FAST, CNRS, Univ. Grenoble Alpes, University of Tsukuba, France*; Aboulaye Traoré,* LSPM, CNRS, Université Sorbonne Paris Nord, France*; Marceline Bonvalot,* Univ. Grenoble Alpes, CNRS, Grenoble INP, LTM; Japanese-French Laboratory for Semiconductor Physics and Technology J-FAST, CNRS, Univ. Grenoble Alpes, University of Tsukuba, France*; Etienne Gheeraert,* Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel; Institute of Applied Physics, University of Tsukuba; Japanese-French Laboratory for Semiconductor Physics and Technology J-FAST, CNRS, Univ. Grenoble Alpes, University of Tsukuba, France	**Atomic Layer Etching** **Session ALE2-TuA** **ALE Applications II** **Moderators:** **Harm C.M. Knoops**, Oxford Instruments Plasma Technology, Netherlands, **Jaewon Lee**, SK Hynix, Republic of Korea
4:15pm	**ALE2-TuA-12** Atomic Layer Etching of MgO-doped Lithium Niobate Using Sequential Plasma Exposures, ***Austin Minnich,*** *Ivy Chen, Jennifer Solgaard, Ryoto Sekine, Azmain Hossain, Anthony Ardizzi, David Catherall, Alireza Marandi,* Caltech*; James Renzas,* University of Nevada, Reno*; Frank Greer,* Jet Propulsion Laboratory (NASA/JPL)	
4:30pm	**ALE2-TuA-13** Comparison of Gas-Pulsing Atomic Layer Etching (ALE) Characteristics Between Low-GWP Alternative Gases C_4F_6, $C_4H_2F_6$ and a Conventional Gas C_4F_8, *Shinjae You,* Department of Physics, Chungnam National University and Institute of Quantum Systems (IQS), Chungnam National University, Republic of Korea*;* ***Dongki Lee (Graduate Student),*** *Inho Seong,* Department of Physics, Chungnam National University, Republic of Korea*; Young-seok Lee,* Tokyo Electron Korea Ltd., Republic of Korea*; Sijun Kim,* Laboratoire de Physique des Plasmas (LPP), CNRS, Sorbonne Université, École Polytechnique, Institut Polytechnique de Paris, Republic of Korea*; Chul_Hee Cho, Wonnyoung Jeong,* Department of Physics, Chungnam National University, Republic of Korea*; Ehsanul Haque Jami,* Department of Physics, Chungnam National University, Bangladesh*; Min-su Choi, Byeongyeop Choi, Seonghyun Seo, Isak Lee, Woobeen Lee, Won-gyun Park, Jinhyeok Jang,* Department of Physics, Chungnam National University, Republic of Korea	
4:45pm	**ALE2-TuA-14** The Influence of Laminate Doping of Atomic Layer Etching of Zinc Oxide, ***Sabir Hussain,*** *Emily Duggan, Lynette Keeney, Jun Lin, Ian Povey,* Advanced Materials and Surfaces Group, Tyndall National Institute, University College Cork, Lee Maltings Complex, Dyke Parade, Ireland*; Mark Sowa, Laurent Lecordier,* Veeco Instruments	
5:00pm	**ALE2-TuA-15** Ale of Tin Using Sf_6:H_2 Plasma: The Role of H, F, and Hf in Defining the Ale Window, ***Guillaume Krieger,*** *Silke Peeters, Erwin Kessels,* Eindhoven University of Technology, The Netherlands*; Harm Knoops,* Oxford Instruments Plasma Technology, UK, Eindhoven University of Technology, Netherlands	
5:15pm	**ALE2-TuA-16** Atomic Layer Etching of Ruthenium Using Surface Oxidation with O_2 Plasma and Chelation with Formic Acid, ***Hojin Kang (Graduate Student),*** *Eunsu Lee, Minsung Jeon, Heeyeop Chae,* Sungkyunkwan University (SKKU), Republic of Korea	

Tuesday Afternoon, June 24, 2025

	Room Tamna Hall A	
1:30pm	**INVITED: AA-TuA-1** Characteristics of ALD IGZO for the application in Stackable DRAM Cell, ***Seung Wook Ryu***, R&D Process, R&D division SK hynix Inc, Republic of Korea	**ALD Applications** **Session AA-TuA** **3D Semiconductor Devices** **Moderators:** **Dennis Hausmann**, Lam Research, **Jonas Sundqvist**, BALD Engineering AB, Sweden
2:00pm	**AA-TuA-3** 5 nm Thick Indium Nitride Channel Layers Fabricated by PEALD for 3D Transistor Architectures, ***Doo San Kim***, *Minjong Lee, Min Gyeong Jo, Thi Thu Huong Chu, Dushyant Narayan, Dan Le,* The University of Texas at Dallas; *Youngbae Ahn, Ja-Yong Kim, Seung Wook Ryu,* SK hynix, Republic of Korea; *Jiyoung Kim,* The University of Texas at Dallas	
2:15pm	**AA-TuA-4** Bottom-Up Mo Fill for Metal Interconnect Applications: Selective and Superconformal Approaches, ***Matthew Griffiths***, *Arya Shafiefarhood, David Mandia, Justin Kim, Aleksandr Plokhikh, Youness Alvandi, Nick De Marco, Ben Natinsky, Andrew Melton, Jennifer O'Loughlin,* Lam Research Corporation	
2:30pm	**AA-TuA-5** Thermal Atomic Layer Deposition of Sn-incorporated MoO_2 Electrode Films for High-performance TiO_2-based DRAM Capacitors, ***Jae Hyeon Lee (Undergraduate)***, *Jeong Hwan Han,* Seoul National University of Science and Technology, Republic of Korea	
2:45pm	**AA-TuA-6** Highly Ordered Crystalline ALD-InGaO Thin Films with High Mobility and Thermal Stability for Next-Generation 3D Memory Devices, ***Seong-Hwan Ryu (Graduate Student)***, *Hye-Mi Kim, Dong-Gyu Kim, Jin-Seong Park,* Hanyang University, Korea	
3:00pm	**AA-TuA-7** Amino Acid-Based BiomimeticOrganic-Inorganic Hybrid Memristors by Molecular Layer Deposition for Neuromorphic Applications, *Lin Zhu*, ***Ai-Dong Li***, *Song Sun,* Nanjing University, China; *Yan-Qiang Cao,* Nanjing University of Science and Technology, China	
3:15pm		
3:30pm	**BREAK & EXHIBITS**	
4:00pm	**INVITED: AS-TuA-11** Surface Chemistry Characterization for Area-Selective Atomic Layer Deposition of Ruthenium, ***Eun-Hyoung Cho***, 2D Device TU(SAIT)/Samsung Electronics, Republic of Korea	**Area Selective ALD** **Session AS-TuA** **Area Selective Deposition I** **Moderators:** **Il-Kwon Oh**, Ajou University, Republic of Korea, **Mikko Ritala**, University of Helsinki, Finland
4:30pm	**AS-TuA-13** Dopant-Selective Atomic Layer Deposition (DS-ALD) for Fabrication of Electronic Devices, ***Daniel Aziz (Graduate Student)***, *Nishant Deshmukh,* Georgia Institute of Technology, USA; *Ryugo Shimamura,* University of Tokyo, Japan; *Amy Brummer,* Georgia Institute of Technology, USA; *Kaifan Yue,* University of Michigan, Ann Arbor; *Siddharth Kurup,* Georgia Institute of Technology, USA; *Kira Barton,* University of Michigan, Ann Arbor; *Eric Vogel,* Georgia Institute of Technology; *Michael Filler,* Georgia Institute of Technology, USA	
4:45pm	**AS-TuA-14** ALD Outstanding Presentation Award Finalist**:** High Temperature Area Selective ALD SiN by in-Situ Selective Surface Fluorination, ***Haonan Liu***, *Ken Okoshi, Hiroki Murakami, Yamato Tonegawa,* Tokyo Electron Technology Solutions Ltd., Japan	
5:00pm	**AS-TuA-15** Mutifunctional Ru/ZnO Bilayer for Sustainable Cu Interconnects using Area-Selective Atomic Layer Deposition of barrier with Small Molecule Inhibitor, ***Minwoo Kim (Graduate Student)***, *Yeseul Son, Sang Bok Kim, Soo-Hyun Kim,* Ulsan National Institute of Science and Technology (UNIST), Republic of Korea	
5:15pm	**AS-TuA-16** Technological Promise of a Frustratingly Elusive $Ni(^{tbu2}DAD)_2$—Yet the Challenge is Part of the Breakthrough, ***Gabriele Botta***, Nanogune, Italy	

Tuesday Afternoon, June 24, 2025

	Room Tamna Hall B	
1:30pm	**INVITED: EM-TuA-1** Vapor Phase Infiltration for Membrane Modification, ***David Bergsman,*** University of Washington	**Emerging Materials** **Session EM-TuA** **Molecular Layer Deposition & Hybrid Materials II** **Moderators:** **Jolien Dendooven**, Ghent University, Belgium, **Chang-Yong Nam**, Brookhaven National Laboratory
2:00pm	**EM-TuA-3** Dry Developing Process of Molecular Layer Deposited Hf-Based Hybrid Thin Films for EUV Lithography, ***Minki Choe (Graduate Student)***, *Dan Le, Thi Thu Huong Chu, Hyunah Sung,* University of Texas at Dallas*; Nikhil Tiwale,* Brookhaven National Laboratory*; In-Hwan Baek, Rino Choi,* Inha University, Republic of Korea*; Chang-Yong Nam,* Brookhaven National Laboratory*; Jiyoung Kim,* University of Texas at Dallas	
2:15pm	**EM-TuA-4** Inverted Living Molecular Layer Deposition: Rapid Conformal Polymer Coatings through Vapor-Phase Living Polymerization, ***Karina Ashurbekova***, *Mato Knez,* CIC nanoGUNE, Spain	
2:30pm	**EM-TuA-5** ALD Outstanding Presentation Award Finalist**:** Recent Advancement of Inorganic-Organic Hybrid Resist Thin Films Deposited via Molecular Atomic Layer Deposition for Dry EUV Resist Platforms, *Dan N. Le, Thi Thu Huong Chu, Hyunah Daniela Sung, Minki Choe, Minjong Lee,* University of Texas at Dallas*; Won-Il Lee,* Stony Brook University*; Nikhil Tiwale,* Brookhaven National Laboratory*; Jean-Francois Veyan, Doo San Kim,* University of Texas at Dallas*; Chang-Yong Nam,* Brookhaven National Laboratory*;* ***Jiyoung Kim***, University of Texas at Dallas	
2:45pm	**INVITED: EM-TuA-6** Rethinking Thermoelectrics: The „Power" of Hybrids Engineered by Vapor Phase Infiltration, ***Kristina Ashurbekova***, CIC nanoGUNE, Spain*; Maksim Naumochkin, Heiko Reith, Kornelius Nielsch,* Leibniz Institute for Solid State and Materials Research, Germany*; Mato Knez,* CIC nanoGUNE, Spain	
3:15pm		
3:30pm	**BREAK & EXHIBITS**	
4:00pm	**INVITED: NS-TuA-11** Towards Low-Resistance P-Type Contacts to 2D Transition Metal Dichalcogenides Using Plasma-Enhanced Atomic Layer Deposition, ***Ageeth Bol,*** University of Michigan, Ann Arbor	**Nanostructure Synthesis and Fabrication** **Session NS-TuA** **2D Materials and Devices** **Moderators:** **Nathanaelle Schneider**, CNRS-IPVF, France, **Tamar Segal-Peretz**, Israel Institute of Technology, Israel
4:30pm	**NS-TuA-13** Selective Passivation of 2D TMD Surface Defects by Atomic Layer Deposition for Enhancing Recovery Rate of Gas Sensor, ***Minji Kim (Graduate Student)***, *Inkyu Sohn, Dain Shin, Sangyoon Lee, Hwi Yoon, Jisang Yoo, Seung-min Jung, Hyungjun Kim,* Yonsei University, Korea	
4:45pm	**NS-TuA-14** Beyond the conventional AB process: Advanced ALD approaches for controlling the properties and growth of MoS_2 and WS_2 2D Materials, ***Cindy Lam***, *Eryk Gruszecki, Erwin Kessels, Bart Macco,* Eindhoven University of Technology, The Netherlands	
5:00pm	**NS-TuA-15** Deposition and Characterization of Transition Metal Oxide/2d Transition Metal Dichalcogenide Quantum Wells, ***Shih-Hao Tseng (Graduate Student)***, *Yu-Chuan Lin,* Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan	
5:15pm	**NS-TuA-16** Engineering Al_2O_3 Interlayer via Atomic Layer Deposition for Enhancing Contact Properties of MoS_2-Based FET, ***Minu Cho (Undergraduate)***, *Hwi Yoon, Sanghun Lee, Seongyeong Park, Inkyu Sohn, Hyungjun Kim,* Yonsei University, Korea	

ALD Applications
Room Event Hall - Session AA-TuP
ALD Applications Poster Session
5:45 – 7:00 pm

AA-TuP-1 The Role of Al2O3 ALD Coating on Sn-Based Intermetallic Anodes for Rate Capability and Long-Term Cycling in Lithium-Ion Batteries, ***Niloofar Soltani***, *Amin Bahrami, Daria Mikhailova, Kornelius Nielsch*, Leibniz Institute for Solid State and Materials Research, Germany

AA-TuP-2 ALD on Particulate Materials: A Data-Driven Review of Technologies, Materials and Applications from the Bottom Up, ***Peter M. Piechulla***, *Mingliang Chen*, Delft University of Technology, Netherlands; *Riikka L. Puurunen*, Aalto University, Finland; *J. Ruud van Ommen, Aris Goulas*, Delft University of Technology, Netherlands

AA-TuP-3 Atomic Layer Deposition of Silver Catalysts for Hydroxide Exchange Membrane Fuel Cells, ***Gwon Deok Han***, Sookmyung Women's University, Republic of Korea; *Beum Geun Seo*, Korea University, Republic of Korea; *Hyung Jong Choi*, Stanford University; *Junmo Koo*, Korea Maritime & Ocean University, Republic of Korea; *Fritz Prinz*, Stanford University; *Joon Hyung Shim*, Korea University, Republic of Korea

AA-TuP-4 A Study on the Development of a New Ga Precursor for IGZO Thin Films and the Characteristics of Thin Films Using the Same, ***kyung-eun Lee***, *Min-hyuk Nim, Taek Seung Yang*, lakematerials, Republic of Korea

AA-TuP-5 A Study on the Characteristics of Thin-Film Using New in Producers for IGZO Thin-Film, ***HAN-BOM KIM***, *MIN-HYUK NIM, Taek Seung Yang*, lakematerials, Republic of Korea

AA-TuP-6 A Study on the Characteristics of IGZO Thin Films Using New Ga and In Precursors, ***Yeon-Soo Kim***, *Kyung-Eun Lee, Min-Hyuk Nim, Taek Seung Yang, Chang Ho Song*, LAKE MATERIALS CO., LTD., Republic of Korea; *Nam Eun Kim, Ki-Seok An*, KRICT, Republic of Korea

AA-TuP-7 Effect of Al_2O_3 Passivation Layer on Atomic Layer Deposited ZnSnO and Al-doped ZnSnO Thin-Film Transistors with Remarkable Bias-Stress Stability, ***Jinheon Choi (Graduate Student)***, *Sahngik Mun, Juneseong Choi, Jaewon Ham, Hyungjeung Kim, Shihyun Kim, Subin Moon, Cheol Seong Hwang*, Seoul National University, Korea (Democratic People's Republic of)

AA-TuP-8 Ferroelectric-Like Tunnel Switch Behavior of an Antiferroelectric/Dielectric $Hf_{1-x}Zr_xO_2/Al_2O_3$ Bilayer Structure, ***Seungheon Choi (Graduate Student)***, *Seungyong Byun, Han Sol Park, Cheol Seong Hwang*, Seoul National University, Republic of Korea

AA-TuP-9 Demonstration of Amorphous Oxide Semiconductor Thin Film Transistors with Mold Structure via Channel-Last Process, *Cheol Seong Hwang, **Subin Moon (Graduate Student)**, Sukin Kang, Jinheon Choi, Sahngik Aaron Mun, Juneseong Choi, Jaewon Ham, Hyungjeung Kim, Shihyun Kim*, Seoul National University, South Korea

AA-TuP-10 Utilizing Ethanol as a Pre-reducing Agent for Atomic Layer Deposition MoO_2/TiO_2-Based Metal-Insulator-Metal Capacitors to Enhance Electrical Properties, ***Soomin Yoo (Graduate Student)***, Kyunghee University, Republic of Korea; *Seungwoo Lee*, Kyunghee Univerity, Republic of Korea; *Chaeyeong Hwang, Woojin Jeon*, Kyunghee University, Republic of Korea

AA-TuP-11 Nontemplate *in-Situ* Crystallization of Atomic Layer Deposited Molybdenum Dioxide *via* Substitutional Doping of Ruthenium, ***Chaeyeong Hwang (Graduate Student)***, Kyunghee university, Republic of Korea; *Myeong Ho Kim, Yoon-A Park, Jin-Sik Kim*, R&D Team 1, UP Chemical Co., Ltd., Republic of Korea; *Woojin Jeon*, Kyunghee University, Republic of Korea

AA-TuP-12 Comprehensive Study on ALD HfO_2-based RRAM with Next-Generation Ru Electrodes for High-Performance Memory Technology, ***Yunsur Kim (Graduate Student)***, *Jiyong Woo*, Kyungpook National University, Republic of Korea

AA-TuP-13 Effect of the Number and Distribution of Al_2O_3 Atomic Layer Deposition Cycles Within Hfo_2 Layer on Ferroelectric Characteristics, ***Hyoungjin Park (Graduate Student)***, *Jiyong Woo*, School of Electronic and Electrical Engineering, Kyungpook National University, Republic of Korea

AA-TuP-14 Atomic Layer Deposited Single-Atom Catalysts of Pt/Co3O4 for Improved Electrocatalytic Hydrogen Evolution Reaction Performance, *Yue Huang, **Ying-Jie Ma (Graduate Student)**, Ai-Dong Li*, Nanjing University, China

AA-TuP-15 Atomic Layer Deposited Amorphous High-entropy Oxide Protective Layer for Stable Zinc Metal Anode, *Li-Ling Fu, **Ai-Dong Li***, Nanjing University, China

AA-TuP-16 Transforming Waste Textiles into VC/V_2O_{3-x}-Decorated Porous Carbon for Flexible Battery Hosts, ***Viet Phuong Nguyen***, *Seung Mo Lee*, Korea Institute of Machinery & Materials (KIMM), Republic of Korea

AA-TuP-17 Dual Ferroelectric Stack by ALD with Tunable Coercive Voltage for High-Density 3D Memory Applications, *Jiyong Woo, **Jiae Jeong (Graduate Student)***, Kyungpook National University, Republic of Korea

AA-TuP-18 Inducing the Tetragonal-Phase HfO_2 in ZrO_2/HfO_2 Stack by Introducing the Controlled Interfacial Layer, ***Woo Young Park***, WONIKIPS, Republic of Korea

AA-TuP-19 Boosting SERS Performance of Moo_3 Substrates via ALD Surface Modifications, ***Yanqiang Cao***, *Wenyue Yin*, Nanjing University of Science and Technology, China

AA-TuP-20 ZrO_2 Seed-layer Induced Crystallization of $Hf_{1-x}Zr_xO_2$ with Energy Barrier Lowering Effect of the Ferroelectric Orthorhombic Phase Transition, ***Kyongjae Kim (Graduate Student)***, *Eunseo Jo, Myeonggeun Yoo, Youseung Rim*, Sejong University, Republic of Korea

AA-TuP-21 Highly Conductive Transparent Hybrid Superlattices with Excellent Gas-Barrier Properties and Flexibility, *Myung Mo Sung*, Hanyang University, Korea; ***Quang Khanh Nguyen (Graduate Student)***, Hanyang University, Korea, Viet Nam

AA-TuP-22 Enhanced Growth Stability of ZrO_2, HfO_2, and In_2O_3 Deposited by Liquid Injection Atomic Layer Deposition, *Il-Kwon Oh, **Soon-Kyeong Park (Graduate Student)**, Ji-Won Jang*, Ajou University, Republic of Korea

AA-TuP-23 Enhanced Cryogenic Stability and Endurance of CMOS-Compatible ALD $HfZrO_2$ FeCAPs with Optimized WO Interfacial Layer, ***Eunjin Kim (Graduate Student)***, *Jiyong Woo*, Kyungpook National University, Republic of Korea

AA-TuP-24 Thermal Atomic Layer Deposition of Ru-incorporated Molybdenum Carbide Thin Films via Inter-ligand Reaction for Advanced Copper Metallization, *Jeong Hwan Han, **Ji Sang Ahn (Graduate Student)***, Seoul National University of Science and Technology, Republic of Korea

AA-TuP-25 Stabilization of Metastable Rutile TiO_2 Through Engineering of the Upper Layer for Memory Applications, ***Jeon Ji Hoon***, *Kim Seong Keun*, Korea Institute of Science and Technology (KIST), Republic of Korea

AA-TuP-26 Enhancing Plasma Resistance in Semiconductor Equipment with Atomic Layer Deposition Thin Films, *Young Yeon Ji, **Bongjun Koo**, Changsup Kwon, In-rae Park*, Hansol IONES, Republic of Korea

AA-TuP-27 Crystallization Annealing-Free Ferroelectric Tunnel Junctions with ZrO_2 Seed-layer and HfO_2-ZrO_2 Superlattice, ***Kwang Min Jeong***, *You Seung Rim*, Department of Semiconductor Systems Engineering and Convergence Engineering for Intelligent Drone, Sejong University, Republic of Korea

AA-TuP-28 Synthesis and Characterization of $SrTiO_3$ Thin Films by Atomic Layer Deposition with $Sr(dmts)(hfac)_2$ and $(CpMe_5)Ti(OMe)_3$, ***Sangyeon Jeong (Graduate Student)***, *Jaejun Lee, Woongkyu Lee*, Department of Materials Science and Engineering, Soongsil University, Republic of Korea

AA-TuP-29 Ozone Post-Treatment for Highly Stoichiometric TiO_2 Thin Films with Improved Dielectric Performance, ***Juan Hong (Graduate Student)***, *Hyeongjun Kim, Woongkyu Lee*, Department of Materials Science and Engineering, Soongsil University, Republic of Korea

AA-TuP-30 Mobility Enhancement in In_2O_3/Al_2O_3 Nanolaminate Structures Grown by Atomic Layer Deposition, ***Kyunghun Lyu (Graduate Student)***, *Woongkyu Lee*, Department of Materials Science and Engineering, Soongsil University, Republic of Korea

AA-TuP-31 Evaluation of Molybdenum Oxidation for the Growth of Rutile TiO_2, *Jin Tae Noh, **Kyong Min Kim**, Byeong Hyeon Kang, Seokjun Han, Seok Nam Koh, Tae Wan Lee*, Wonik IPS, Republic of Korea

AA-TuP-32 Fast, Remote Plasma ALD of Highly Conductive TiN for Quantum Applications, ***Arpita Saha***, *Dmytro Besprozvannyy, Yi Shu, Agnieszka Kurek*, Oxford Instruments Plasma Technology, UK; *Harm Knoops*, Oxford Instruments Plasma Technology, UK, Eindhoven University of Technology, UK

AA-TuP-33 Optimized Interface Engineering of ALD SrTiO3 for DRAM Capacitors, *Seong Keun Kim, **Seung Wan Ye (Graduate Student)**, Hong Keun Chung, Jeon Jihoon*, Korea Institute of Science and Technology (KIST), Republic of Korea

AA-TuP-34 Urea Production from Polluted Seawater by Atomic Layer Deposited Catalytic Layers, ***Rens Kamphorst***, *Peter M. Piechulla, Ruud J. van Ommen*, Delft University of Technology, Netherlands

AA-TuP-35 Tailoring the Scavenging Effect of ALD-Al_2O_3 Passivation Layer via Oxidant Engineering for High-Performance Tellurium Transistors, ***Jaeyoon Shim (Undergraduate)***, *Jaemin Jung, In-Hwan Baek*, Inha University, Korea (Democratic People's Republic of)

AA-TuP-36 Selective Surface Passivation for Ultrathin and Continuous Metallic Films via Atomic Layer Deposition, *Seong Keun Kim,* KU-KIST Graduate School of Converging Science & Technology, Korea University, Republic of Korea*; Han Kim, Taeseok Kim,* ***Minseok Kim (Graduate Student)****, Jihoon Jeon, Gwang Min Park,* KU-KIST Graduate School of Converging Science and Technology, Korea University, Republic of Korea*; Sung-Chul Kim, Sung Ok Won,* Korea Institute of Science and Technology (KIST), Republic of Korea*; Ryosuke Harada,* TANAKA, Japan*; Sangtae Kim,* Department of Nuclear Engineering, Hanyang University, Republic of Korea

AA-TuP-37 Atomic Layer Deposition-Enabled Lateral Conversion of Transition Metal Dichalcogenides for Electrochemical Hydrogen Generation, ***Asem Jakyp (Graduate Student)****,* Nazarbayev University, Kazakhstan*; Aidar Kemelbay,* Lawrence Berkeley National Laboratory*; Arman Tuigynbek, Alexander Tikhonov,* Nazarbayev University, Kazakhstan

AA-TuP-38 Low-Temperature Thermal Atomic Layer Deposition of Gallium Nitride Thin Films, ***Jian Heo (Graduate Student)****, Yerim Choi, Hyeji Kim, Okhyeon Kim, Hye-Lee Kim, Won-Jun Lee,* Sejong University, Republic of Korea

AA-TuP-39 High-Performance p-Type SnO Thin Film Transistor with Raised Source/Drain using Dry Etching Method, ***Jaemin Jung****, Jaeyoon Shim, InHwan Baek,* InHa University, Korea (Democratic People's Republic of)

AA-TuP-40 Gain Enhancement of Microchannel Plate Detectors via ALD Coatings Inside the Channels, *Sun Gil Kim,* ***Min Seop Song (Graduate Student)****, Hyun Mi Kim, Ki Hun Seong, Sung Kyu Jang, Jong Hyun Choi,* Korea Electronics Technology Institute (KETI), Republic of Korea*; Yu Bin Nam,* Kyonggi University, Republic of Korea*; Jeong Gil Na, Kyung Hwan Jeong,* JJ CNS, Republic of Korea*; Seul Gi Kim, Hyeong Keun Kim,* Korea Electronics Technology Institute (KETI), Republic of Korea

AA-TuP-41 Effects of Alkali-Metal Doping on Aluminum-Silicate Coated Titanium Oxide Thin Film Transistors Prepared by Atomic Layer Deposition, ***Ryo Miyazawa (Graduate Student)****, Haruto Suzuki, Hibiki Takeda, Bashir Ahmmad Arima, Fumihiko Hirose,* Graduate School of Science and Engineering, Yamagata University, Japan

AA-TuP-42 Influence of Atomic-layer-deposited MoNx Layers on Ferroelectric Properties of Hf-Zr-O Capacitors, *Jeong Hwan Han,* ***Jeong min Han (Undergraduate)****, Wangu Kang,* Seoul National University of Science and Technology, Republic of Korea

AA-TuP-43 Enhanced Stability of Ultrathin Mo-Passivated RuO2 Bottom Electrodes for TiO2-Based DRAM Capacitors, *Han Jeong Hwan,* ***Choi Seon Gu (Graduate Student)****, Lee Jae Hyeon,* Seoul National University of Science and Technology, Republic of Korea

AA-TuP-44 Towards Ultra-Low Resistivity of Titanium Nitride PEALD Layers Grown on an Amorphous SiO_2 Substrate with Aluminum Nitride Interfacial Layer, ***Valentina Korchnoy****,* Technion Israel Institute of Technology, Israel*; Inna Popov,* The Hebrew University of Jerusalem, Israel*; Yael Etinger,* Technion Israel Institute of Technology, Israel*; Michael Lisiansky,* Tower Semiconductors, Israel

AA-TuP-45 High-Performance Tio2 Hardmask for sub-10 Nm Advanced Memory Patterning, ***Heongyu Lee (Graduate Student)****, Seul-Gi Kim, Cheongha Kim, sumin Lee, Hyun-mi Kim, Sun Gil Kim, Jong Hyun Choi, Hyeongkeun Kim,* Korea Electronics Technology Institute (KETI), Republic of Korea

AA-TuP-46 Machine Learning-Driven Thermal Budget Analysis for Ferroelectric $Hf_{0.5}Zr_{0.5}O_2$ Capacitors, ***Minjong Lee (Graduate Student)****,* University of Texas at Dallas*; Jongmug Kang,* Kangwon National University, Republic of Korea*; Dushyant Narayan, Geon Park, Dan Le,* University of Texas at Dallas*; Seungbin Lee, Hyeonghong Min, Gwanghyeon Jang, Si Joon Kim,* Kangwon National University, Republic of Korea*; Jiyoung Kim,* University of Texas at Dallas

AA-TuP-47 Energy Storage Performance of Field-Induced Ferroelectric Al_2O_3-Inserted $Hf_{0.5}Zr_{0.5}O_2$ Thin Films for Electrostatic Supercapacitors, ***Jonghoon Shin (Graduate Student)****, Dong Hoon Shin, Haengha Seo, Kyung Do Kim, Seungheon Choi, Tae Kyun Kim, Heewon Paik, Haewon Song, Seungyong Byun, In Soo Lee, Cheol Seong Hwang,* Seoul National University, South Korea

AA-TuP-48 Atomic Layer Deposition of Ru-Ir Binary Alloy Thin Films for Advanced Interconnects, *Se-Hun Kwon,* ***Yeong-Seo Cho (Graduate Student)****, Myung-Jin Jung,* Pusan National University, Republic of Korea

AA-TuP-49 Nanolaminated Al_2O_3/ZrO_2 film using Atomic Layer Deposition to enhance corrosion resistance on SUS304 steel, *Se-Hun Kwon,* ***Jae-Hyun Kim (Graduate Student)****,* Pusan National University, Republic of Korea

AA-TuP-50 Impact of Al Gradient Doping on HfO_2 Based Metal – Insulator – Metal DRAM Capacitor, ***Taelim Lee****, Jungwoo Bong, Hosung Lee, Seongmin Jin, Keun Heo,* Jeonbuk National University, Republic of Korea

AA-TuP-51 Aero-TiO2 Three-Dimensional Nanoarchitecture for Photocatalytic Degradation of Tetracycline, ***Sebastian Lehmann****, Kornelius Nielsch,* Leibniz Institute for Solid State and Materials Research, Germany*; Vladimir Ciobanu, Tatiana Galatonova, Tudor Braniste, Ion Tiginyanu,* National Centre for Materials Study and Testing, Moldova (Republic of)

AA-TuP-52 Enhanced Reliability and Low-Voltage Operation in $Hf_{0.5}Zr_{0.5}O_2/ZrO_2/Hf_{0.5}Zr_{0.5}O_2$ Stack Compatible with Back-End of Line Process, ***Yinchi Liu****, Hao Zhang, Jining Yang, Xun Lu, Shiyu Li, Yeye Guo, Yiwen Yu, Hao Zhu, Lin Chen, Hongliang Lu, Shijin Ding, Wenjun Liu,* Fudan University, China

AA-TuP-53 Design of Crystalline InGaO Channels with High-Temperature Stability via Thermal ALD Process Parameter Variations, ***Hye-Jin Oh (Graduate Student)****,* Hanyang University, Korea*; Dong-Gyu Kim,* Hanyang University, Republic of Korea*; Tae Woong Cho, Hae Lin Yang,* Hanyang University, Korea*; Jihyun Kho, Yurim Kim, Bong Jin Kuh,* Samsung Electronics Co., Republic of Korea*; Jin-Seong Park,* Hanyang University, Korea

AA-TuP-54 Advancements in ALD for DRAM: High-Performance Films for Capacitor and Electrode Applications, ***Tejinder Singh****,* Eugenus, Inc.

AA-TuP-55 Optimization of Low-Temperature PEALD for High-Performance TiO_2/SiO_2 Optical Coatings, ***Duy Thanh Cu (Graduate Student)****, Guan-Yu Ke,* National Central University, Taiwan*; Wen-Hao Cho,* Taiwan Instrument Research Institute, National Applied Research Laboratories, Taiwan*; Chien-Cheng Kuo,* National Central University, Taiwan

AA-TuP-56 Analysis of the Ambipolar Conduction of Atomic-layer-deposited Tin Monoxide Thin-Film Transistors with Indium Tin Oxide Electrodes, *Cheolseong Hwang,* ***Sahngik Mun (Graduate Student)****, Seoryong Park, Yonghee Lee, Sukin Kang, Jinheon Choi, Jaewon Ham, Juneseong Choi,* Seoul National University, Republic of Korea

AA-TuP-57 Catalyst Engineering and Synthesis via Atomic Layer Deposition, ***Xinhua Liang****,* Washington University in St. Louis

AA-TuP-58 Enhancement of Stress Distribution through Patterned Island Design Using Atmospheric Pressure Spatial-ALD, ***Min-Seo Kim****, Won-Bum Lee, Chi-Hoon Lee, Jin-Seong Park,* Hanyang University, Korea

AA-TuP-59 Demonstration of Reliable Ferroelectric Memory with Optimized 4 Nm-Thick $Hf_{1-x}Z_{Rx}O_2$ Films and an Ultra-Thin Al_2O_3 Capping Layer, ***Han Sol Park****, Cheol Seong Hwang,* Seoul National University, Republic of Korea

AA-TuP-60 Zirconium Carbide (ZrC_x) Thin Films as Next-generation Diffusion Barriers for Cu and Ru Interconnects Prepared by Plasma Enhanced Atomic Layer Deposition, ***Minjeong Kweon (Graduate Student)****, Chaehyun Park, Sang bok Kim, Soo-Hyun Kim,* Ulsan National Institute of Science and Technology (UNIST), Republic of Korea

AA-TuP-61 Centralized Bulk Precursor Delivery by Means of Direct Liquid Injection, ***Ehsan Mohseni****, Johannes Grübler, Joerg Koch,* SEMPA SYSTEMS GmbH, Germany

AA-TuP-62 Highly-Conductive ALD-WCx Thin Films Using a New Fluorine-Free W Precursor for Cu & Ru Interconnects, ***Dongbeom Seo (Graduate Student)****, Soo-Hyun Kim, Sang Bok Kim,* Ulsan National Institute of Science and Technology, UNIST, Republic of Korea

AA-TuP-63 Germanium Doping for Electrical Modulation of Ferroelectric $HfZrO_4$ Using Atomic Layer Deposition, ***Jared McWilliams****, Sunil Ghimire, Charlene Chen, Ray Meck, Nguyen Vu,* Merck KGaA, Darmstadt

AA-TuP-64 Trap Density Reduction in High-k Dielectrics: A Dual Approach with ALD Optimization and HPDA, ***Taewon Hwang (Undergraduate)****, Su-Hwan Choi, Chang-Kyun Park, Jin-Seong Park,* Hanyang University, Korea

AA-TuP-65 ALD-Al_2O_3 Buffer Layer, a Key Component for Realizing Stretchable Thin Film Transistor Arrays, ***Jaehyun Moon****, Bock Soon Na,* Electronics and Telecommunication Research Institute (ETRI), Republic of Korea*; Sangmin Lee, Taek-Soo Kim,* Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea*; Seong-Deok Ahn, Seung-Youl Kang,* Electronics and Telecommunication Research Institute (ETRI), Republic of Korea

AA-TuP-66 Optimization of High-*k* Gate Insulators for Amorphous IGZO channel-based 3D DRAM: Materials and Process Development, ***Seonyeong Park (Graduate Student)****, Jisang Yoo,* Yonsei University, Korea*; Jeongwoo Park, Pilsang Yun, Daewon Ha,* Samsung Electronics Co., Republic of Korea*; Hyungjun Kim,* Yonsei University, Korea

AA-TuP-67 Polarity-Induced Threshold Voltage Shift in Ovonic Threshold Switch Device Based on Atomic Layer Deposited Germanium Selenide for Vertical Three-Dimensional Selector-Only Memory, ***Jeong Woo Jeon****, Byongwoo Park, Sangmin Jeon, Sungjin Kim, Wonho Choi, Gwangsik Jeon,* Seoul National University, South Korea*; Junyoung Lim, Yonghun Sung, David Ahn,* SK Hynix, Korea*; Cheol Seong Hwang,* Seoul National University, South Korea

AA-TuP-68 Designing Low-Thermal-Budget Hafnia-Based Ferroelectrics Capacitors, ***Peng Yuan****, Xufang Zhang, Jing Zhang,* North China University of Technology, China

AA-TuP-69 Low Resistivity Amorphous/Polycrystalline Titanium Nitride Multilayer Thin Films by Plasma-Enhanced Atomic Layer Deposition for Metal Diffusion Barrier, *Christophe Vallee,* ***Van Long Nguyen****, Natalya Tokranova,* University at Albany-SUNY

AA-TuP-70 Influence of Thermal Annealing on Interdiffusion and Electrical Characteristics of Ferroelectric FETs Interface of IGZO/HZO, ***HyeJoo Kang (Graduate Student)****,* Ajou University, Republic of Korea*; Seung Wook Ryu, Dohee Kim, Jongyoung Lee,* SK Hynix, Korea*; Il-Kwon Oh,* Ajou University, Republic of Korea

AA-TuP-71 Plasma Enhanced Atomic Layer Deposition of HfO_2 with Applying DC Bias, ***Hee Jun Yoon (Graduate Student)****, Taeyoon Lee, Hyeongtag Jeon,* Hanyang University, Korea

AA-TuP-72 Development of High-Performance 2 nm In_2O_3 Thin-Film Transistors via BEOL-Compatible ALD Process Using DBADMIn Precursors*, In-Hwan Baek,* ***InHong Hwang****,* Inha University, Republic of Korea

AA-TuP-73 Influence of Process Conditions on Stability and Plasma Resistance of ALD Y_2O_3 Thin Films*,* ***Min Joo Koo****, Hyun Mi Kim, Hye Young Kim,* Korea Electronics Technology Institute, Republic of Korea*; Chang sub Park, Yong Soo Lee,* KoMiCo, Republic of Korea*; Sung Kyu Jang, Jong Hyun Choi, Seul Gi Kim, Sun Gil Kim, Hyeong keun Kim, Ji hun Kim,* Korea Electronics Technology Institute, Republic of Korea

AA-TuP-74 Increasing Quality of ALD-Grown Nitrides Through Atomic Layer Annealing*,* ***Bas van Asten****,* TU Delft, Netherlands

AA-TuP-75 Plasma-Enhanced and Thermal Atomic Layer Deposition of Superconducting Nitride Thin Films*,* ***Zahra Ahali****, Sanaz Zarabi,* Beneq Oy, Finland*; Ziying Wang, Peter Liljeroth,* Aalto University, Finland*; Otto Laitinen,* Beneq Oy, Finland

AA-TuP-76 Effect of Interfacial Layer on Ferroelectricity of $Hf_{1-x}Zr_xO_2$ Thin Films in MFIS Structure*,* ***Hyo-Bae Kim (Graduate Student)****, Ji-Hoon Ahn,* Hanyang University, Republic of Korea

AA-TuP-77 Lanthanum ALD Precursors for the Application fo High-κ Gate Dielectrics*,* ***I-Cheng Tseng****, Yong-Jay Lee,* Industrial Technology Research Institute, Taiwan

AA-TuP-78 Charge Trapping Memory Structure with Low Interface Defect Density of $<10^{12}$ cm-2 eV-1 via Remote Plasma-Based Hydrogen Post-Treatment*,* ***ChanHee Lee (Graduate Student)****, Hee chul Lee,* Department of Advanced Materials Engineering, Tech university of korea

AA-TuP-79 Plasma-Pretreated ALD Growth of Platinum Catalysts on Carbon Nanotubes for Polymer Electrolyte Membrane Fuel Cell Applications*,* ***Junmo Koo****,* Korea Maritime and Ocean University, Republic of Korea*; Joon Hyung Shim,* Korea University, Republic of Korea

AA-TuP-80 Impact of Zr-Precursor Ligand Design on Interfacial and Electrical Properties of ALD-Grown ZrO_2Thin Films*,* ***Hyeong Jun Kim (Graduate Student)****, Haram Yang, Woongkyu Lee,* Department of Materials Science and Engineering, Soongsil University, Republic of Korea

AA-TuP-81 Mitigating Crystallinity Degradation and Leakage Current of Rutile TiO_2 Dielectric Thin Films via Mg Doping*,* ***Seungwoo Lee (Graduate Student)****, Soomin Yoo, Chaeyeong Hwang,* Kyung Hee University, Republic of Korea*; Hansol Oh, Daeyeong Kim, Yongjoo Park,* SK Trichem, Republic of Korea*; Woojin Jeon,* Kyung Hee University, Republic of Korea

AA-TuP-82 Effect of Tungsten Insertion Layer on the Electrical Properties of PEALD HZO Thin Films for Semiconductor Memory Applications*, Hee Chul Lee, Ha Jeong Kim,* ***Jea Hyuk Choi****,* Semicon Plasma Process LAB, Republic of Korea

AA-TuP-83 The Impact of Chromium Ion Implantation on ALD Lead Chalcogenide Thin Films*, Haifeng Cong,* Old Dominion University*; Charlotte Poterie, Jean Francois Barbot,* Universite de Poitiers-CNRS, France*;* ***Helmut Baumgart****,* Old Dominion University

AA-TuP-84 Atomic Layer Deposition of Zirconia and Titania Inhibit Sintering in Pt Catalysts Under Oxidative Reaction Conditions*,* ***Bang Nhan (Graduate Student)****,* Department of Chemistry, Stanford University*; Shyama Mandal,* Department of Chemical Engineering and SUNCAT Center for Interface Science and Catalysis, Stanford University*; Jacob Smith,* Oak Ridge National Laboratory*; Gennaro Liccardo,* Department of Chemical Engineering and SUNCAT Center for Interface Science and Catalysis, Stanford University*; Sydney Richardson,* Mechanical Engineering, Stanford University*; Frank Abild-Pedersen,* SLAC National Accelerator Laboratory*; Miaofang Chi,* Oak Ridge National Laboratory*; Matteo Cargnello, Stacey Bent,* Department of Chemical Engineering and SUNCAT Center for Interface Science and Catalysis, Stanford University

AA-TuP-85 Thin Conductive Cu Films by Post-Reduction of Atomic Layer Deposited CuO*,* ***Maria Gabriela Sales****, Neeraj Nepal, Peter Litwin, David Boris, Scott Walton, Virginia Wheeler,* U.S. Naval Research Laboratory

AA-TuP-86 Enhanced Dielectric Properties of HfO2 Thin Films Produced Via Novel Catalytic Atomic Layer Deposition Process*,* ***Sara Harris****, Dane Lindblad, Aaron Wang, Arreliane Dameron, Matthew Weimer,* Forge Nano

AA-TuP-87 MoO2Cl2: how the first large volume solid precursor has been enabled for HVM*,* ***Jeffrey Yoder****,* Air Liquide

AA-TuP-88 Mitigation of Surface Dielectric Loss in Superconducting Quantum Devices via Combined Atomic Layer Etching and Deposition*,* ***Neha Mahuli****, Joaquin Minguzzi, Jiansong Gao, Omar Reyna, Sandra Diez, Victor Ly, Guillaume Marcaud, Matthew Hunt, Jefferson Rose, Loren Swenson, Oskar Painter, Ignace Jarrige,* Amazon

Area Selective ALD
Room Event Hall - Session AS-TuP
Area Selective ALD Poster Session
5:45 – 7:00 pm

AS-TuP-1 Advancing AS-ALD of WSe_2 Through Nature-Inspired Engineering*,* ***Kylee Lamberson (Graduate Student)****, Chih-hung Chang,* Oregon State University

AS-TuP-2 Advancements in Area-Selective Deposition by Merck: From Fundamental Principles to Industrial Applications*,* ***Isiah Liu****,* Merck KGaA, Darmstadt, Taiwan*; Lanxia Cheng, Tingmin Wang, Matthew MacDonald, Bhushan Zope,* Merck KGaA, Darmstadt*; Chang-won Lee,* Merck KGaA, Darmstadt, Korea (Democratic People's Republic of)*; Masashi Jinguji, Xinjian Lei,* Merck KGaA, Darmstadt

AS-TuP-3 Comparative Study of Experimental and DFT Calculations of Trimethylaluminium Adsorption on SiO_2, SiN, and Si for Area-Selective Deposition*,* ***Genki Hayashi****, Ni Zeyuan, Yumiko Kawano, Shinichi Ike, Shuji Azumo,* Tokyo Electron Technology Solutions Limited, Japan

AS-TuP-4 An Automated Adsorption Simulation Workflow for Efficient High-Throughput Molecule Screening for Area-Selective Deposition*,* ***Zeyuan Ni****, Michitaka Aita,* Tokyo Electron Technology Solutions Ltd., Japan*; Ayuta Suzki,* TEL Technology Center, America, LLC*; Genki Hayashi, Yumiko Kawano, Shinichi Ike, Shuji Azumo,* Tokyo Electron Technology Solutions Ltd., Japan

AS-TuP-5 Self-Assembled Inhibitor for Area-Selective Deposition on Cu Interconnects to Lower Contact Resistance*,* ***Yun Ki Kim****,* Samsung Electronics, Republic of Korea*; Sang Chul Youn,* Samsung Electronics Co., Republic of Korea

AS-TuP-6 Optimization of Small Molecular Inhibitors for Area-Selective Atomic Layer Deposition by Controlling Alkyl Chain Length*,* ***EunChong Cho (Graduate Student)****,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea*; Hae Lin Yang,* Hanyang University, Korea*; Jung-Hoon Lee,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea*; Jin-Seong Park,* Hanyang University, Korea*; Youngkwon Kim,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea

AS-TuP-7 Area-Selective Atomic Layer Deposition of Amino Silane-Based Small Molecule Inhibitor for Enhancement of Selectivity*,* ***Jae Hun Hwang (Graduate Student)****, EunChong Cho, Youngkwon Kim,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea

AS-TuP-8 Substrate-Driven Selectivity in Area-Selective Atomic Layer Deposition of ZnO: A Theoretical Investigation*,* ***Semin Kim (Graduate Student)****, Yeseul Son, Taeyoung Kim, Soo-Hyun Kim, Byungjo Kim,* UNIST, Republic of Korea

AS-TuP-9 Inherent Area-Selective Atomic Layer Deposition of Molybdenum Carbide for Bottom-up Semiconductor Manufacturing*, Jeong Hwan Han,* ***Min Seok Kim (Undergraduate)****, Ji Sang Ahn,* Seoul National University of Science and Technology, Republic of Korea

AS-TuP-10 Photo-Assisted Atomic Layer Deposition of Metallic Nickel*,* ***Yupu Tang (Graduate Student)****, Ion Lambrou, Ville Jokinen, Ville Miikkulainen,* Aalto University, Finland

AS-TuP-11 Logic Applications of Area Selective Deposition beyond 1.4nm*,* ***Hoon Seok Seo****, Kang Sub Yim,* Samsung Electronics, Republic of Korea

AS-TuP-12 Impurity-Free Accelerators in Atomic Layer Deposition: Driving the Growth of Low-Resistivity Ultrathin Iridium Films*, Se-Hun Kwon,* ***Myung-Jin Jung (Graduate Student)****,* Pusan National University, Republic of Korea

Emerging Materials
Room Event Hall - Session EM-TuP
Emerging Materials Poster Session
5:45 – 7:00 pm

EM-TuP-1 A Novel Topological Semi-Metal: MoP Pathfinding for Future Interconnects at Nanoscale*,* ***Jeong-Seok Na****, Kyle Blakeney, David Mandia, Jeremie Dalton,* LAM Research

EM-TuP-2 Vapor Phase Infiltration of Poly(1-Trimethylsilyl-1-Propyne) with Trimethylaluminium*, Jonathan Jenderny,* Applied Electrodynamics and Plasma Technology, Ruhr-University Bochum, Germany*; Nils Boysen,* Fraunhofer Institute for Microelectronic Circuits and Systems, Duisburg, Germany*; Florian Preischel,* Inorganic Materials Chemistry, Ruhr-University Bochum, Germany*; Teresa de los Arcos,* Technical and Macromolecular Chemistry, Paderborn University, Germany*; Aleksander Kostka,* Center for Interface-Dominated High-Performance Materials, Ruhr-University Bochum, Germany*; Peter Awakowicz,* Applied Electrodynamics and Plasma Technology, Ruhr-University Bochum, Germany*; Jean-Pierre Glauber,* Leibniz Institute for Solid State and Materials Research, Germany*; **Harish Parala**,* Institute for Materials Chemistry, Leibniz Institute for Solid State and Materials Research, IFW Dresden, Germany*; Anjana Devi,* Institute for Materials Chemistry, Leibniz Institute for Solid State and Materials Research, Germany

EM-TuP-3 Study of (TaN)1-XCx Electrode to Investigate Its Impact on OTS Selector Devices*, **Minkyu Lee (Graduate Student)**, Taeyoon Lee,* Yonsei University, Korea

EM-TuP-4 Study for Deposition of CuI onto Indium-Gallium-Zinc-Oxide for Light Detection Application*, **Woosuk Sohn (Graduate Student)**, Taeyoon Lee,* Yonsei University, Korea

EM-TuP-5 Networking Density Effects on the Patterning Performance of Resists Deposited via Hybrid MLD*, **Long Viet Than (Graduate Student)**, Giulio D'Acunto, Stacey F Bent,* Stanford University

Wednesday Morning, June 25, 2025

	Room Halla Hall AB	
8:00am	**INVITED: AA1-WeM-1** Atomic Layer Deposition for Highly Durable Hydrogen Fuel Cells: from Catalyst to Cell, *Xiao Liu, Hang Liu, Yuxin Gao, Jianhua Wu,* ***Rong Chen,*** Huazhong University of Science and Technology, China	**ALD Applications** **Session AA1-WeM** **Catalyst and Fuel Cell Applications** **Moderators:** **Ji Hwan Ahn**, POSTECH, Republic of Korea, **Hao Van Bui**, Phenikaa University, Viet Nam
8:30am	**AA1-WeM-3** Interfacial Properties of ALD-Grown In_2S_3 Catalysts in CO_2 Electroreduction, *Järi Van den Hoek,* University of Antwerp, Belgium*; Femi Mathew, Ruben Blomme,* Ghent University, Belgium*; Lieven Hintjens, Brend De Coen,* University of Antwerp, Belgium*; Eduardo Solano,* ALBA synchrotron, Spain*; Matthias Minjauw,* Ghent University, Belgium*; Nick Daems, Daniel Choukroun,* University of Antwerp, Belgium*; Christophe Detavernier,* Ghent University, Belgium*; Tom Breugelmans,* University of Antwerp, Belgium*;* ***Jolien Dendooven,*** Ghent University, Belgium	
8:45am	**AA1-WeM-4** Scaling Up Platinum on Carbon Catalyst Fabrication for Proton Exchange Membrane Water Electrolysis, ***Peter Michael Piechulla,*** *Mingliang Chen, Sophie van Beusekom,* Delft University of Technology, Netherlands*; Mena-Alexander Kräenbring, Fatih Özcan, Doris Segets,* University of Duisburg-Essen, Germany*; Ruud van Ommen,* Delft University of Technology, Netherlands	
9:00am	**AA1-WeM-5** Platinum Promoted Cobalt based Fischer-Tropsch Thin-Film Catalysts, ***Muhammad Hamid Raza,*** *Avela Kunene, Imane El Arrouji,* PVcomB, Helmholtz-Zentrum Berlin für Materialien und Energie (HZB), Berlin, Germany*; Catalina E. Jiménez,* Department Interface Design, HZB, Berlin, Germany*; Alexander Steigert, Martin Muske, Tobias Köhler, Ali Shan Malik,* PVcomB, Helmholtz-Zentrum Berlin für Materialien und Energie (HZB), Berlin, Germany*; Marcus Bär,* Department Interface Design, HZB, Berlin, Germany. Helmholtz Institute Erlangen-Nürnberg for Renewable Energy (HI ERN), Erlangen, Germany. Dept. Chemistry and Pharmacy, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen, Germany*; Nicola Pinna,* Department of Chemistry and The Center for the Science of Materials Berlin, Humboldt-Universität zu Berlin, Berlin, Germany*; Rutger Schlatmann, Daniel Amkreutz,* PVcomB, Helmholtz-Zentrum Berlin für Materialien und Energie (HZB), Berlin, Germany	
9:15am	**AA1-WeM-6** Selectively Located Pt Clusters on Au/CeO_2 for Highly Robust Water-Gas Shift Reaction via Atomic Layer Deposition, ***Xiao Liu,*** *Yuanting Tang, Bin Shan, Rong Chen,* Huazhong University of Science and Technology, China	
9:30am	**AA1-WeM-7** Fluorine-Free and Freestanding Bipolar Membranes Based on Metal-Oxide Ald-Coated Electrospun Nanofibers for Water Electrolysis and Fuel Cells, ***Arnaud Demore (Graduate Student),*** *Damien Voiry,* IEM - CNRS, France*; Philippe Miele,* IEM - ENSCM, France*; Mikhael Bechelany,* IEM - CNRS, France	
9:45am	**AA1-WeM-8** Efficient Alkaline Hydrogen Evolution Reaction with Iridium Nanostructures synthesized by Atomic Layer Deposition, ***Jhonatan Rodriguez Pereira (Graduate Student),*** *Raul Zazpe, Jan Macak,* University of Pardubice, Czechia	
10:00am	**BREAK & EXHIBITS**	
10:45am	**INVITED: AA3-WeM-12** Using Area-Selective Ald for Dual Site Catalysis for Photocatalytic Water Splitting, ***Katherine Hurst,*** *Wilson McNeary,* National Renewable Energy Laboratory*; William Stinson,* Columbia University*; Shane Ardo,* University of California Irvine*; Daniel Esposito,* Columbia University	**ALD Applications** **Session AA3-WeM** **Other Energy Applications** **Moderators:** **Sumit Agarwal**, Colorado School of Mines, **Rong Chen**, Huazhong University of Science and Technology, China
11:15am	**AA3-WeM-14** Impact of Tetrakis(dimethylamido)tin(IV) Degradation on Atomic Layer Deposition of Tin Oxide Films and Perovskite Solar Cells, *Shuang Qui, Augusto Amaro,* University of Victoria, Canada*; Diana Fabulyak,* Avantor, Canada*; Julien Appleby-Millette,* University of Victoria, Canada*;* ***Cassidy Conover,*** Avantor, Canada*; Dongyang Zhang, Vishal Yeddu, I. Teng Cheong, Irina Paci, Makhsud Saidaminov,* University of Victoria, Canada	
11:30am	**AA3-WeM-15** Ultrathin Oxygen Deficient SnOx Films as Electron Extraction Layers for Perovskite Solar Modules, *Helen Hejin Park,* korea research Institute of Chemical Technology (KRICT), Korea (Democratic People's Republic of)*;* ***Joshua Sraku Adu (Graduate Student),*** Korea Research Institute of Chemical Technology (KRICT), Korea (Democratic People's Republic of)	
11:45am	**AA3-WeM-16** Charge Transport Layers Rafted by Atomic Layer Deposition for Large-Area Perovskite-Based Solar Modules, ***Femi Mathew,*** Institut Photovoltaïque d'Ile-de-France (IPVF), France*; Damien Coutancier,* CNRS-IPVF, France*; Getaneh Gesesse, Marion Provost, Nadia Nazi,* Institut Photovoltaïque d'Ile-de-France (IPVF), France*; Nathanaelle Schneider,* CNRS-IPVF, France	

Wednesday Morning, June 25, 2025

	Room Samda Hall AB	
8:00am	**INVITED: ALE1-WeM-1** Centering Sustainability in Future Plasma-Enhanced ALE Processes*, Nathan Marchack, Robert Bruce,* ***Eric Joseph****,* IBM Research Division, T.J. Watson Research Center	**Atomic Layer Etching** **Session ALE1-WeM** **Plasma and/Energy-Enhanced ALE + Sustainability** **Moderators:** **Jane P. Chang**, University of California, Los Angeles, **Sung-Il Cho**, Samsung Electronics, Republic of Korea
8:30am	**ALE1-WeM-3** Cryogenic Atomic Layer Etching of SiO_2 by Physisorption of HF/C_2H_5OH and Ar Plasmas*,* ***Shih-Nan Hsiao****, Makoto Sekine,* Nagoya University, Japan*; Yoshihide Kihara,* Tokyo Electron Miyagi Limited, Japan*; Masaru Hori,* Nagoya University, Japan	
8:45am	**ALE1-WeM-4** Cryogenic ALE of SiO_2 using CF_4 Plasma*, Madjid Adjabi, Jack Nos, Sylvain Iseni,* GREMI - CNRS/Orleans University, France*; Gilles Cunge, Martin Kogelschatz,* LTM - CNRS/Grenoble Alpes University/Grenoble-INP, France*; Philippe Lefaucheux, Loïc Becerra,* GREMI - CNRS/Orleans University, France*; Emilie Despiau-Pujo,* LTM - CNRS/Grenoble Alpes University/Grenoble-INP, France*;* ***Thomas Tillocher****, Rémi Dussart,* GREMI - CNRS/Orleans University, France	
9:00am	**ALE1-WeM-5** Atomic Layer Etching of Indium Oxide Thin Films via Ligand Addition and O_2 Plasma Reactions*,* ***Minchan Kim (Graduate Student)****, Jihyun Gwoen, Hae Lin Yang, Jin-Seong Park,* Hanyang University, Korea	
9:15am	**ALE1-WeM-6** Development of a Novel Magnetically-Confined Plasma Source for Advanced Semiconductor Manufacturing*, Tae S Cho,* Wonik IPS*; Jihyun Kim,* ***Giwon Shin****, Hakmin Kim, Jeonghun Kim, Sooyoung Hwang, Jaehoon Choi,* Wonik IPS, Republic of Korea	
9:30am	**ALE1-WeM-7** Low-Damage Plasma Atomic Layer Etching of Silicon Dioxide and Nitride via DC Substrate Bias and Remote Inductively Coupled Plasma Source*, Hee Chul Lee,* ***HongHee Jeon (Undergraduate)****, SoWon Kim,* Tech University of Korea	
9:45am		
10:00am	**BREAK & EXHIBITS**	
10:45am	**INVITED: ALE2-WeM-12** In-Situ Observation of Surface Reaction and Advanced Process for Damage-Less Atomic Layer Etching*,* ***Takayoshi Tsutsumi****,* Nagoya University, Japan	**Atomic Layer Etching** **Session ALE2-WeM** **ALE Applications III** **Moderators:** **Keun Hee Bai**, Samsung Electronics Co., Republic of Korea, **Younghee Lee**, Lam Research Corporation, Republic of Korea
11:15am	**ALE2-WeM-14** Isotropic ALE of 2D Crystalline MoS_2 using SF_6:H_2 Plasma and O_2 Plasma*,* ***Sanne Deijkers (Graduate Student)****, Christian Palmer, Nick Chittock, Guillaume Krieger, Silke Peeters, Marcel Verheijen,* Eindhoven University of Technology, The Netherlands*; Harm Knoops,* Oxford Instruments Plasma Technology, Netherlands*; Erwin Kessels, Adrie Mackus,* Eindhoven University of Technology, The Netherlands	
11:30am	**ALE2-WeM-15** Design of Multi-Coil Single-Switch Induction Heating System with PI-Based Burst Mode Control for ALD/ALE Processes to Achieve High Efficiency and Rapid Transient Response*,* ***Sang-Wook Ryu (Graduate Student)****,* Dongguk University, Republic of Korea*; Jihyun Kim, Hakmin Kim,* Wonik IPS, Republic of Korea*; Tae S. Cho,* Wonik IPS*; KWANGSEON JIN,* Wonik IPS, Republic of Korea	
11:45am	**ALE2-WeM-16** Enhanced Plasma Ignition and Sustaining of Transformer-Coupled Plasma Source with a Secondary Coil*, Tae S Cho,* ***Jae Hoon Choi****, Hak Min Kim, Gi Won Shin, Soo Young Hwang, Ji Hyun Kim,* Wonik IPS, Republic of Korea	

Wednesday Morning, June 25, 2025

	Room Tamna Hall A	
8:00am	**INVITED: AS1-WeM-1** Area-selective ALD of ZnS on Atomic Layer Etched (ALE) Substrates via Growth Modulation, ***Taewook Nam,*** Sejong University, Republic of Korea	**Area Selective ALD** **Session AS1-WeM** **Area Selective Deposition II** **Moderators:** **Stacey Bent**, Stanford University, **Anjana Devi**, Ruhr University Bochum, Germany
8:30am	**AS1-WeM-3** Passivation of Nitride Surface Using Aldehyde Inhibitor for Area Selective Atomic Layer Deposition of SiNx on Oxide Surface, ***Summal Zoha (Graduate Student),*** *Ngoc Le Trinh, Bonwook Gu, Han-Bo-Ram Lee,* Incheon National University, Republic of Korea	
8:45am	**AS1-WeM-4** Blocking Effects of Small Molecule Inhibitors in Atomic Layer Deposition: An Off-lattice Kinetic Monte Carlo Study, ***Zhaojie Wang (Graduate Student),*** *Yanwei Wen, Rong Chen, Bin Shan,* Huazhong University of Science and Technology, China	
9:00am	**AS1-WeM-5** Controlling the Surface Chemistry of Silicon Nitride Using a Plasma Pretreatment for Area-Selective Deposition, ***Marc Merkx,*** *Pengmei Yu,* Eindhoven University of Technology, Netherlands; *Jhon González,* Universidad Tecnica Federico Santa Maria, Chile; *Ilker Tezsevin,* eindhoven University of Technology, Netherlands; *Rachel Nye de Casto, Dennis Hausmann,* Lam Research Corporation; *Erwin Kessels,* Eindhoven University of Technology, Netherlands; *Tania Sandoval,* Universidad tecnica Federico Santa Maria, Chile; *Adriaan Mackus,* eindhoven University of Technology, Netherlands	
9:15am	**AS1-WeM-6** Area Selective Atomic Layer Deposition of Ruthenium with Pinacolborane as a Small Molecule Inhibitor, *Mikko Ritala,* ***Sundas Ismaeel,*** University of Helsinki, Finland	
9:30am	**AS1-WeM-7** Inherent Area-Selective Deposition of Low-Resistivity Molybdenum Carbide Films by Thermal Atomic Layer Deposition, *Jeong Hwan Han,* ***Ji Sang Ahn (Graduate Student),*** Seoul National University of Science and Technology, Republic of Korea	
9:45am	**AS1-WeM-8** Enhancing Area Selective Deposition Through Sub-saturated ALD: A Pathway to High Volume Manufacturing, ***Nupur Bihari,*** Lam Research Corporation	
10:00am	**BREAK & EXHIBITS**	
10:45am	**INVITED: AS2-WeM-12** Industrial ALD/ASD Perspectives: Atomic Level Process Control for Semiconductor Devices, ***HanJin Lim,*** Samsung Electronics, Republic of Korea	**Area Selective ALD** **Session AS2-WeM** **Area Selective Deposition III** **Moderators:** **Rick Chen**, Merck KGaA, Darmstadt, Germany, **John Conley**, Oregon State University
11:15am	**AS2-WeM-14** Area-Selective Deposition for Dielectric Films on Metal Substrates: Coupon to Full Wafer, ***Rachel Nye de Castro,*** *Paul Lemaire, Alexander Fox, Joel Smith, Nupur Bihari, Bill Nunn, Kevin Mclaughlin, Dennis Hausmann,* LAM Research	
11:30am	**AS2-WeM-15** Redox-coupled Inherently Selective Atomic Layer Deposition of SiO_2 on SiO_2/Si_3N_4 for 3D NAND structure, ***Kun Cao,*** *Zilian Qi, Eryan Gu, Rong Chen,* Huazhong University of Science and Technology, China	
11:45am	**AS2-WeM-16** Area-selective Atomic Layer Deposition of Ruthenium via Plasma Surface Modification, *In-Hwan Baek,* ***Dahui Jeon (Graduate Student),*** Inha university, Republic of Korea	

Room Tamna Hall B

8:00am	**AA2-WeM-1** Remarkable Productivity and Performance of OLED Encapsulation through Growth Dynamics Control via Atmospheric Pressure Spatial Atomic Layer Deposition, ***Chi-Hoon Lee (Graduate Student)***, *Kwang Su Yoo, Daejung Kim, Ji-Min Kim, Jin-Seong Park,* Hanyang University, Republic of Korea	**ALD Applications** **Session AA2-WeM** **Display Applications** **Moderators:** **Angel Yanguas-Gil**, Argonne National Lab, **Junjie Zhao**, Zhejiang University, China
8:15am	**AA2-WeM-2** Crystallinity Control through Composition Engineering for High-Performance $MgIn_xO_y$ TFTs via Thermal Atomic Layer Deposition, ***Ji-Su Bae (Graduate Student)***, *Chi-Hoon Lee,* Hanyang University, Republic of Korea*; Sung-Hae Lee,* Entegris, Republic of Korea*; Jin-Seong Park,* Hanyang University, Republic of Korea	
8:30am	**AA2-WeM-3** Nitrogen-Doped SiO_2 Gate Insulator for Enhanced Stability in ALD-IGZO TFTs, ***Tae-Heon Kim (Graduate Student)***, *Dong-Gyu Kim, Jin-Seong Park,* Hanyang University, Republic of Korea	
8:45am	**AA2-WeM-4** Engineering Hydrogen Content in SiN_x Thin Films via Precursor Control for Improved Oxide TFTs Characteristics, ***Sang-Hyun Kim (Graduate Student)***, *Tae Heon Kim, Jin-Seong Park,* Hanyang University, Korea	
9:00am	**AA2-WeM-5** Remarkable Stability and Hydrogen Resistance on High-Mobility Oxide TFTs via N_2O Plasma Reactant in Atomic Layer Deposition, ***So Young Lim (Undergraduate)***, *Sang-Hyun Kim, Yoon-Seo Kim, Taewon Hwang, Tae Heon Kim, Haklim Koo, Jin-Seong Park,* Hanyang University, Korea	
9:15am	**AA2-WeM-6** Highly Stable Fluorine-Anion Engineered ALD Indium Oxide Thin-Film Transistors towards BEOL Integration, ***Jinxiong Li (Graduate Student)***, *Xinwei Wang,* School of Advanced Materials, Peking University, Shenzhen 518055, China	
9:30am	**AA2-WeM-7** High-Pressure Atomic Layer Deposition of Elemental Tellurium for Enhanced P-Type Semiconductors, *Myung Mo Sung,* ***Dai Tran Cuong (Graduate Student)***, Hanyang University, Korea	
9:45am	**AA2-WeM-8** Ultrathin Sn-Doped in_2O_3 Films for Scalable Semiconductor Transistors, ***Seung Ho Ryu (Graduate Student)***, Korea University, Republic of Korea*; Taikyu Kim,* Korea Institute of Science and Technology (KIST), Republic of Korea*; Taeseok Kim, Seong Keun Kim,* Korea University, Republic of Korea	
10:00am	**BREAK & EXHIBITS**	
10:45am	**AF-WeM-12** High Crystallinity Yttrium-Doped ZrO2 under 2 nm Through Atomic Layer Modulation, ***Ngoc Le Trinh (Graduate Student)***, *Bonwook Gu, Wonjoong Kim, Minhyeok Lee,* Incheon National University, Republic of Korea*; Byung-ha Kwak,* Ajou University, Republic of Korea*; Hyun-Mi Kim, Hyeongkeun Kim,* Korea Electronics Technology Institute, Republic of Korea*; Youngho Kang,* Incheon National University, Republic of Korea*; Il-Kwon Oh,* Ajou University, Republic of Korea*; Han-Bo-Ram Lee,* Incheon National University, Republic of Korea	**ALD Fundamentals** **Session AF-WeM** **Material Growth I** **Moderators:** **Kivin Im**, SK Hynix, Republic of Korea, **Gregory N. Parsons**, North Carolina State University
11:00am	**AF-WeM-13** ALD Outstanding Presentation Award Finalist**:** Ultrahigh Purity Plasma-Enhanced Atomic Layer Deposition and Electrical Properties of Epitaxial Scandium Nitride, ***Bruce Rayner***, *Noel O'Toole,* Kurt J. Lesker Company*; Bangzhi Liu, Jeffrey Shallenberger,* The Pennsylvania State University*; Jiadi Zhu, Tomas Palacios, Piush Behera, Suraj Cheema,* Massachusetts Institute of Technology*; Blaine Johs,* Film Sense*; Nicholas Strnad,* DEVCOM Army Research Laboratory	
11:15am	**AF-WeM-14** Microwave Enhanced (ME) ALD of HfO_2, *Jessica Haglund-Peterson,* ***John Conley***, Oregon State University	
11:30am	**AF-WeM-15** Atomic Level Engineering of Dy-doped HfO2 Ultra-thin Films via Controlling Lateral and Vertical Mixing, ***Byung-Ha Kwak (Graduate Student)***, Ajou University, Republic of Korea*; Ngoc Le Trinh,* Incheon National University, Viet Nam*; Bonwook Gu, Han-Bo-Ram Lee,* Incheon National University, Republic of Korea*; Il-Kwon Oh,* Ajou University, Republic of Korea	
11:45am	**AF-WeM-16** Process-Structure-Properties of Atomic Layer Deposited Niobium Nitride and Evolution of Strain with Plasma Chemistry, ***Neeraj Nepal***, *Joseph C Prestigiacomo, Maria Gabriela Sales, Peter M Litwin, Vikrant J Gokhale, Virginia D Wheeler,* U.S. Naval Research Laboratory	

	Room Halla Hall AB	
1:30pm	**AA1-WeA-1** Atomic Layer Deposition and Molecular Layer Deposition for Li and Na Metal Anodes, ***Yang Zhao***, University of Western Ontario, Canada	**ALD Applications** **Session AA1-WeA** **Battery Applications I** **Moderators:** **Wei-Min Li**, Jiangsu Leadmicro Nano-Equipment Technology Ltd., China, **Keith Wong**, Applied Materials
1:45pm	**AA1-WeA-2** Low Temperature Spatial Atomic Layer Deposition of LiF Films for Li-Ion Batteries, *Joost van Himste,* SparkNano, Netherlands*; Niels Hoogendoorn,* Eindhoven University of Technology, The Netherlands*; Jamie Greer,* Air Liquide Advanced Materials, Germany*; Nicolas Blasco,* Air Liquide Advanced Materials, France*;* ***Paul Poodt****,* SparkNano, and Eindhoven University of Technology, Netherlands	
2:00pm	**AA1-WeA-3** Advancing Nickel-Rich Layered Oxide Cathodes via Atomic-Scale Synthesis and Surface Engineering, ***Jin Xie***, ShanghaiTech University, China	
2:15pm	**AA1-WeA-4** Unveiling the Unconventional ALD Chemistry of Trimethylaluminum (TMA) on Battery Materials, ***Donghyeon Kang***, *Kyobin Park, Jeffrey Elam,* Argonne National Laboratory	
2:30pm	**AA1-WeA-5** Novel Li-Precursor for Interface Engineering in Li-Ion Batteries, ***Meike Pieters (Graduate Student)***, *Cristian van Helvoirt, Lina Bartel, Niels Hoogendoorn, Mariadriana Creatore,* Eindhoven University of Technology, The Netherlands	
2:45pm	**AA1-WeA-6** Oxidative Molecular Layer Deposition of Polypyrrole on High Surface Area Powder Substrates for Li-ion Battery Applications, ***Brandon Woo***, *Jaime DuMont, Markus Groner, Casey Christopher, Drew Lewis, Jessica Burger, Greg Pach, Wyatt Blevins,* Forge Nano*; Malachi Noked, Ortal Shalev,* Bar Ilan University, Israel*; Arrelaine Dameron,* Forge Nano	
3:00pm	**AA1-WeA-7** Taming Lithium Nucleation and Growth on Cu Current Collector by Electrochemical Activation of ZnF_2 Layer, ***Viet Phuong Nguyen***, *Jae-Hyun Kim, Seung-Mo Lee,* Korea Institute of Machinery & Materials (KIMM), Republic of Korea	
3:15pm	**AA1-WeA-8** Atomic Layer Deposition of Aluminum Phosphorus Oxynitride and Its Application as Passivation Layers on Aluminum Metal Anode, ***Jian Liu***, *Li Tao,* University of British Columbia, Canada	
3:30pm	**BREAK**	
4:00pm	**AA2-WeA-11** Novel Atomic and Molecular Layer Deposition Processes for Robust Battery Interfaces, ***Xiangbo Meng***, *Kevin Velasquez Carballo, Kang Lu, Aiying Shao,* University of Arkansas	**ALD Applications** **Session AA2-WeA** **Battery Applications II** **Moderators:** **Il-Kwon Oh**, Ajou University, Republic of Korea, **Junjie Zhao**, Zhejiang University, China
4:15pm	**AA2-WeA-12** Atomic Layer Deposition of Al_2O_3 and ZrO_2 Coatings on Single-Crystal NCM Cathodes: A Parametric Study for Enhanced Lithium-Ion Battery Performance, ***Sung Eun Jo (Graduate Student)***, *Wooseong Kim, Hyongjune Kim,* Pohang University of Science and Technology (POSTECH), Republic of Korea*; Jungwoo Park,* POSCO Holdings, Republic of Korea*; Jihwan An,* Pohang University of Science and Technology (POSTECH), Republic of Korea	
4:30pm	**AA2-WeA-13** Role of the Precursor'S Stability for ALD Lithium-Containing Films, ***Nicolas Massoni***, *Manon Letiche, Sylvain Poulet,* CEA/LETI-University Grenoble Alpes, France*; Katharina Märker, Pierre-Alain Bayle,* CEA-University Grenoble Alps, IRIG, France*; Névine Rochat,* CEA/LETI-University Grenoble Alpes, France*; Olivier Hernandez,* Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, France*; Messaoud Bedjaoui,* CEA/LETI-University Grenoble Alpes, France	
4:45pm	**AA2-WeA-14** Closing Remarks and Awards in Tamna Hall A	

Wednesday Afternoon, June 25, 2025

	Room Samda Hall AB	
1:30pm	**INVITED: AM1-WeA-1** Spatial Atomic Layer Deposition of Cu-Based Thin Films, ***David Muñoz-Rojas,*** CNRS, France	**ALD for Manufacturing** **Session AM1-WeA** **ALD Equipment I** **Moderators:** **Eun-Hyoung Cho**, 2D Device TU(SAIT)/Samsung Electronics, Republic of Korea, **Woo Jae Lee**, KNU, Republic of Korea
2:00pm	**AM1-WeA-3** Visualization of Precursor Transport in Vapor Deposition Systems: Measurements and Simulations, ***James Maslar,*** *Vladimir Khromchenko, Berc Kalanyan,* NIST-Gaithersburg	
2:15pm	**AM1-WeA-4** Atomic Layer Deposition on Highly Cohesive Granular Material in Fluidized Beds, ***Rens Kamphorst,*** Delft University of Technology, Netherlands; *Kaiqiao Wu,* Delft University of Technology, China; *Saeed Saedy, Gabrie M.H. Meesters, J. Ruud van Ommen,* Delft University of Technology, Netherlands	
2:30pm	**AM1-WeA-5** From the Research Lab to the Fab: Comparison of Vapor Generation by Bubbler and Direct Liquid Injection Vapor Delivery Systems, ***David Curran,*** 5910 Rice Creek Parkway Suite 300	
2:45pm	**AM1-WeA-6** Advancing Fast Spatial Atomic Layer Deposition: Optimizing Precursor Control and Atmospheric Effects for Functional Oxide Thin Films, ***Viet Huong Nguyen,*** Faculty of Materials Science and Engineering, Phenikaa University, Hanoi 12116, Viet Nam., Viet Nam	
3:00pm	**AM1-WeA-7** High Deposition Rate TiO PEALD Process for Semiconductor Industry, ***Sungbae Kim,*** *Yeahyun Gu, Hyunchul Kim, Hyungjoo Shin,* ASM, Republic of Korea	
3:15pm	**AM1-WeA-8** Spatial ALD Deposited Functional Layers for Large-Area Inverted Perovskite Solar Modules, ***Xuewei Jiang (Graduate Student),*** Huazhong University of Science and Technology, China; *Fan Yang,* Luoyu Road 1037, Wuhan, China; *Bin Shan, Rong Chen,* Huazhong University of Science and Technology, China	
3:30pm	**BREAK**	
4:00pm	**AM2-WeA-11** Spatial Atomic Layer Deposition of Nanolaminate Barrier Coatings Enables Sustainable Packaging, ***Denys Vidish (Graduate Student),*** University of Waterloo, Canada; *Soumyadeep Saha, Louis Delumeau, Tristan Grovu,* Nfinite Nanotechnology Inc., Canada; *Kevin Musselman,* University of Waterloo, Canada	**ALD for Manufacturing** **Session AM2-WeA** **ALD Equipment II** **Moderators:** **Tae Wook Nam**, Sejong University, Republic of Korea, **Bonggeun Shong**, Hongik University, Republic of Korea
4:15pm	**AM2-WeA-12** Advancing Atomic Layer Processing for Next Generation Devices: Atlant 3d'S Direct Atomic Layer Processing (Dalp™), ***Mira Baraket,*** ATLANT 3D Nanosystems, Denmark	
4:30pm	**AM2-WeA-13** Analysis of Controllable Coil Patterns to Improve Temperature Uniformity of Inducted-Heated Susceptor, ***Jihyun Kim,*** *Hakmin Kim, Kwangson Jin, Tae S. Cho,* Wonik IPS, Republic of Korea	
4:45pm	**AM2-WeA-14** Closing Remarks and Awards in Tamna Hall A	

Wednesday Afternoon, June 25, 2025

	Room Tamna Hall A	
1:30pm	**INVITED: AS-WeA-1** Polypeptoid Brushes as Growth-Promoting Monolayers: Advancing Area-Selective Deposition for EUV Lithography, *Beihang Yu,* Lawrence Berkeley National Laboratory*; Maggy Harake, Yujin Lee, Stacey Bent,* Stanford University*; **Ricardo Ruiz,*** Lawrence Berkeley National Laboratory	**Area Selective ALD** **Session AS-WeA** **Area Selective Deposition IV** **Moderators:** **Benjamin Greenberg**, Naval Research Laboratory, **Michael Nolan**, University College Cork, Ireland
2:00pm	**AS-WeA-3** Area Selective Deposition of $SiAlO_x$ Films for Self-Aligned Dielectric-on-Dielectric Application, ***Eryan Gu**, Wang Li, Kun Cao, Rong Chen,* Huazhong University of Science and Technology, China	
2:15pm	**AS-WeA-4** Control of Three-Color Area-Selective Deposition of PEDOT Conjugated Polymer on SiN vs SiO2 and Si-H by Adjustment of Pre-Treatment Sequence, ***Jeremy Thelven (Graduate Student)**, Nicholas Carroll, Gregory Parsons,* North Carolina State University	
2:30pm	**AS-WeA-5** Annealing PEDOT Thin Films to Generate a Selectively Deposited Etching Hard Mask Layer, ***Nicholas Carroll (Graduate Student)**, Carwynn Rivera, Man Hou Vong, Hannah Margavio,* North Carolina State University*; Hwan Oh,* Brookhaven National Laboratory*; Gregory Parsons,* North Carolina State University	
2:45pm	**AS-WeA-6** Ring-Opening Enhanced Etching of Cyclosiloxanes for Area-Selective MLD of SiOC(H) Thin Films, ***Xiaocheng Huang (Graduate Student)**, Weiwei Du, Yuanhao Shen, Pengzhe Cai, Delong Liu, Junjie Zhao,* Zhejiang University, China	
3:00pm	**AS-WeA-7** Area-Selective Molecular Layer Deposition of Polymer Thin Films for Contact Hole/Trench Shrinking, ***Pengzhe Cai (Graduate Student)**, Junjie Zhao,* Zhejiang University, China	
3:15pm	**AS-WeA-8** Catalytic Oxygen Dissociation for Area-Selective HfO_2 Deposition on Cobalt through Selective PMMA Etching, ***Enzo Novoselic (Graduate Student)**, Christophe Vallée, Natalya Tokranova,* University at Albany-SUNY	
3:30pm	**BREAK**	
4:00pm	**AA3-WeA-11** Atomic Layer Deposition for Self-Healing Stone Cultural Heritage Preservation, *Ancy Mini Vibin Lal Nayakom Mini, Gabriele Botta, Mato Knez, **Aranzazu Sierra Fernández,*** CIC nanoGUNE, Spain	**ALD Applications** **Session AA3-WeA** **Emerging Applications** **Moderators:** **Bong Jin Kuh**, Samsung Electronics, Republic of Korea, **Markku Leskelä**, University of Helsinki, Finland
4:15pm	**AA3-WeA-12** Harnessing Atomic and Molecular Layer Deposition for Advanced Membrane Technologies in Water Treatment, ***Eran Edri**,* Ben Gurion University Be'er Sheva, Israel	
4:30pm	**AA3-WeA-13** Surface Modification of Additive Manufacturing Feedstocks, *Chris Gump, Brandon Castro, Joeseph Gauspohl,* Forge Nano*; Anthony Manerbino, Jeremy Iten,* Elementum3D*; Guillermo Rojas, Casey Christopher, Markus Groner, Dane Lindblad, Brandon Woo, **Arrelaine Dameron**,* Forge Nano	
4:45pm	**AA3-WeA-14** Closing Remarks and Awards	

Wednesday Afternoon, June 25, 2025

	Room Tamna Hall B	
1:30pm	**INVITED: AF-WeA-1** ALD of Nitride Semiconductors, ***Henrik Pedersen***, Linköping University, Sweden	**ALD Fundamentals** **Session AF-WeA** **Material Growth II** **Moderators:** **Ageeth Bol**, University of Michigan, Ann Arbor, **Erwin Kessels**, Eindhoven University of Technology, Netherlands
2:00pm	**AF-WeA-3** Towards Two New Atomic Layer Deposition Processes for the Distinct Synthesis of Coo or Co_3O_4 Thin Films, ***Olivier Debieu***, CIRIMAT, Université de Toulouse (CNRS / INP / UT3), Ensiacet, France; *Getaneh Diress Gesesse, Julien Cardin, Bilal Bawab, Christophe Labbe, Cédric Frilay, Sylvain Duprey,* CIMAP, ENSICAEN, UNICAEN, CEA, CNRS UMR5262, France; *Jean-François Lohier,* CRISMAT, ENSICAEN, UNICAEN, CNRS UMR6508, France	
2:15pm	**AF-WeA-4** High-Quality ALD-Ru Process Using Thermally Stable ALD Ru Precursor, ***Hideaki Nakatsubo***, TANAKA PRECIOUS METAL TECHNOLOGIES Co., Ltd. / UNIST, Japan; *Jeongha Kim, Soo-Hyun Kim,* UNIST, Korea (Democratic People's Republic of)	
2:30pm	**AF-WeA-5** The Development of Ultralow-Dielectric Constant Boron Nitride Film by Novel Plasma Atomic Layer Deposition, ***Kazuki Goto***, *Yoshihiro Kato, Shuichiro Sakai, Hiroki Murakami, Yamato Tonegawa,* Tokyo Electron Technology Solutions Ltd, Japan	
2:45pm	**AF-WeA-6** Thermal Atomic Layer Deposition of InN using Hot-wire-activated NH_3 and Hydrazine Reactants, ***Bonwook Gu (Graduate Student)***, *Kwangyong An, Han-Bo-Ram Lee,* Incheon National University, Republic of Korea	
3:00pm	**AF-WeA-7** Electron-Enhanced ALD and CVD of Titanium-, Silicon- and Tungsten-Containing Films at Low Temperatures Using Metal Precursors with Various Reactive Background Gases, *Zachary C. Sobell,* ***Andrew S. Cavanagh***, *Steven M. George,* University of Colorado at Boulder	
3:15pm	**AF-WeA-8** Low-Temperature Atomic Layer Deposition of (00l)-Oriented Elemental Bismuth, ***Amin Bahrami***, *Jorge Luis Vazquez-Arce, Alessio Amoroso, Nicolas Perez,* Leibniz Institute for Solid State and Materials Research, Germany; *Jaroslav Charvot,* University of Pardubice, Czechia; *Dominik Naglav-Hansen,* Ruhr-University Bochum, Germany; *Panpan Zhao, Jun Yang, Sebastian Lehmann, Angelika Wrzesińska-Lashkova,* Leibniz Institute for Solid State and Materials Research, Germany; *Fabian Pieck, Ralf Tonner-Zech,* Leipzig University, Germany; *Filip Bureš,* University of Pardubice, Czechia; *Annalisa Acquesta,* University of Napoli Federico II, Italy; *Yana Vaynzof, Anjana Devi, Kornelius Nielsch,* Leibniz Institute for Solid State and Materials Research, Germany	
3:30pm	**BREAK**	
4:00pm	**AA4-WeA-11** Room-Temperature Atmospheric Pressure ALD for Pharmaceutical Powder Coating: Tailoring Surface Properties and Controlling Drug Release, *Viet Phuong Cao, Kim Hue Dinh, Phi Huu Bui, Truong Duc Dinh, Quoc Viet Hoang, Diem Quyen Nguyen, Tuan Hiep Tran,* ***Hao Van Bui***, Phenikaa University, Viet Nam	**ALD Applications** **Session AA4-WeA** **Medical Applications** **Moderators:** **Junsoo Kim**, SK Hynix, Republic of Korea, **Se-Hun Kwan**, Pusan National University, Republic of Korea
4:15pm	**AA4-WeA-12** Atomic Layer Deposition for Medical Applications, ***J. Ruud van Ommen***, *Alina Y. Rwei, Antonia G. Denkova, Volkert van Steijn,* Delft University of Technology, Netherlands	
4:30pm	**AA4-WeA-13** Recent Advances in Multifunctional Antibacterial Neural Interfacing Electrodes Manufactured via Atomic Layer Deposition and Hierarchical Surface Restructuring, ***Shahram Armini***, Pulse Technologies; *Henna Khosla,* Villanova University; *Wesley Seche,* Pulse Technologies; *Daniel Ammerman,* Rowan University; *Matthew Maniscalco, Alexander Blagojevic, Pouya Tavousi,* University of Connecticut; *Sahar Elyahoodayan,* University of Southern California; *Gregory A. Caputo, Jeffrey Hettinger,* Rowan University; *Sina Shahbazmohamadi,* University of Connecticut; *Gang Feng,* Villanova University	
4:45pm	**AA4-WeA-14** Closing Remarks and Awards in Tamna Hall A	

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