

2024 AP-ALD Technical Sessions Overview

Sheraton Shanghai Waigaoqiao Hotel, Shanghai, China, Oct. 17 ~ Oct. 20, 2024

Date	Time	Meeting room A	Meeting room B	Meeting room C
Oct 18th	9:00-9:10	Opening (Shanghai Ballroom)		
	9:10-10:40	Plenary Session (Shanghai Ballroom)		
	11:00-12:10	Special Keynote (Shanghai Ballroom)		
	14:00-15:25	Session A1 ALD Oxides I	Session B1 ALD Simulations I	Session C1 ALD Catalysis I
	15:50-17:15	Session A2 ALD Oxides II	Session B2 ALD Simulations II	Session C2 ALD Catalysis II
	17:15-18:30	Poster Session I (Shanghai Ballroom Anteroom)		
Oct 19th	9:00-10:25	Session A3 ALD Oxides III	Session B3 Area Selective ALD I	Session C3 ALD Energy I
	10:50-12:15	Session A4 ALD 2D Materials	Session B4 Area Selective ALD I	Session C4 ALD Energy II
	14:00-15:25	Session A5 ALD Memory I	Session B5 ALD Novel Process and Instrument I	Session C5 ALD Membrane
	15:50-17:25	Session A6 ALD Memory II	Session B6 ALD Novel Process and Instrument II	Session C6 ALD Emerging Applications
Oct 20th	9:00-9:55	Session A7 ALD TFT I	ALD Display	Conference Committee Meeting
	9:55-11:00	Session A8 ALD TFT II	Session B7 ALD Encapsulation	

Friday, October 18, 09:00 –09: 10	
Opening	Shanghai Ballroom 2

Friday, October 18, 09:10 –10: 40	
Plenary Session P Shanghai Ballroom 2	
Session Chair: Prof. Rong Chen, Huazhong University of Science and Technology, China.	
09:10-09:55	ALD for Two Dimensional Chalcogenides Nanomaterials Prof. Hyungjun Kim <i>School of Electrical and Electronic Engineering, Yonsei University, Korea</i>
09:55-10:40	Process Technologies to Enable Future Device and Scaling Dr. Yamato Tonegawa <i>Tokyo Electron Technology Solutions Ltd, Japan</i>

Friday, October 18, 10:40 –12: 10	
Special Keynote S Shanghai Ballroom 2	
Session Chair: Prof. Soo-Hyun Kim, Ulsan National Institute of Science and Technology, Korea	
10:40-11:00	Coffee break
11:00-11:35	ALD for Photovoltaics Dr. Weiming li <i>Jiangsu Leadmicro Nano Technology Co. Ltd. China</i>
11:35-12:10	Atomic-Layer-Deposited Aluminum Oxide for Metal-Oxide Thin-Film transistors Prof. Man Wong <i>Hongkong University of Science and Technology , Hong Kong, China</i>

Friday, October 18, 14:00 –15: 25	
Session A1 Meeting room A	
Session Chair: Prof. Hongliang Lu	
14:00-14:30	Challenges of ALD Oxide Semiconductor Channel Materials for Emerging Semiconductor Applications (keynote) Prof. Jin-Seong Park <i>Division of Material Science and Engineering, Hanyang University, Seoul, 04763 Republic of Korea</i>
14:30-14:50	Oxide Semiconductors for Advanced DRAM Applications (invited) Prof. Yanqing Wu <i>Division of Material Science and Engineering, Hanyang University, Seoul, 04763 Republic of Korea</i>

14:50-15:10	Atomic Layer Deposition of Amorphous and Crystalline Oxide Semiconductors and Their Device Applications (invited) Prof. Takanori Takahashi <i>Graduate School of Science and Technology, Nara Institute of Science and Technology, Ikoma, Nara, 630-0192</i>
15:10-15:25	Atomic-Layer-Deposited Oxide Semiconductor Thin-Film Transistors for Monolithic 3D Integration Jinxiong Li ¹ , Shanshan Ju ¹ , Jiye Li ² , Yuqing Zhang ³ , Songjie Yang ¹ , Xu Tian ¹ , Lei Lu ² , Shengdong Zhang ² , and Xinwei Wang ^{1,*} <i>School of Advanced Materials, Peking University, Shenzhen 518055, China</i>

Friday, October 18, 14:00 –15: 25	
Session B1 Meeting room B Session Chair: Prof. Xinwei Wang	
14:00-14:20	Precursor design and reaction mechanism of atomic layer deposition (invited) Guoyong Fang <i>College of Chemistry and Materials Engineering, Wenzhou University, 325035, China</i>
14:20-14:50	The advantages and applications of UHV-ALD (keynote) Sunan Ding <i>School of Integrated Circuits, Nanjing University Suzhou/Jiangsu/China, 215613</i>
14:50-15:10	Physical and chemical properties of ALD precursors, from a structural perspective (invited) Xiabing Lou <i>Shanghai Oryphant Chemicals Co., Ltd., Shanghai, China, 201500</i>
15:10-15:25	Modeling Conformality of Silicon Nitride in High Aspect Ratio Trench Structure by Atomic Layer Deposition Sen Deng ¹ , Hua Shao ^{2*} , Rui Chen ^{2*} , Dandan Han ¹ ,Yayi Wei ^{1,2*} <i>School of Integrated Circuits, University of Chinese Academy of Sciences, Beijing, China, 100049</i>

Friday, October 18, 14:00 –15: 25	
Session C1 Meeting room C Session Chair: Prof. Yong Qin	
14:00-14:20	Development of Catalytic Materials by Atomic Layer Deposition and its Application for Renewable Energy (invited) Woo-Jae Lee <i>School of Nanotechnology and Semiconductor Engineering, Pukyong National University, Korea, 48513</i>

14:20-14:40	Precise metal location control and dynamic catalysis (invited) Bin Zhang <i>State Key Laboratory of Coal Conversion, Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan, China, 030001</i>
14:40-14:55	Spatially confined alloying of Pt accelerates mass transport for fuel cell oxygen reduction Yuxin Gao, Hang Liu, Xiao Liu*, Bin Shan*, Rong Chen <i>School of Materials Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, Hubei, People's Republic of China</i>
14:55-15:25	Atom-by-atom Synthesis of Heterogeneous Catalysts using Atomic Layer Deposition (keynote) Junling Lu <i>Key Laboratory of Precision and Intelligent Chemistry, School of Chemistry and Materials Science, (iChem)University of Science and Technology of China, Hefei, Anhui 230026 China</i>

Friday, October 18, 15:50 –17: 15	
Session A2 Meeting room A Session Chair: Prof. Jin-Seong Park	
15:50-16:20	On the Reliabilities of ALD-based HZO Ferroelectric Memory Capacitors (Keynote) Jiezhi Chen <i>School of Information Science and Engineering, Shandong University, Qingdao, China</i>
16:20-16:40	Design of Ferroelectric Hf_xZr_{1-x}O₂ Thin Films by Atomic Layer Deposition (invited) Takashi Onaya <i>Department of Advanced Materials Science, The University of Tokyo, 5-1-5 Kashiwanoha, Kashiwa, Chiba 277-8561, Japan</i>
16:40-17:00	Metal-oxide Self-rectifying Memristors for In-memory Computing (invited) Yi Li <i>School of Integrated Circuits, Huazhong University of Science and Technology, Wuhan, China, 430074</i>
17:00-17:15	HfO₂-Based Ferroelectric Thin Films and Memory Device Adopting ALD Method Jiajia Liao ¹ , Min Liao ^{1*} , and Yichun Zhou ^{1*} <i>School of Advanced Materials and Nanotechnology, Xidian University, Xi'an, Shaanxi, 710126, China</i>

Friday, October 18, 15:50 –17: 15	
Session B2 Meeting room B Session Chair: Prof. Sunan Ding,	
15:50-16:10	Virtual System of ALD: Visualize the Entire Life of Precursors Using Simulation (invited) Liwei Zhuang <i>School of Chemical Engineering, East China University of Science and Technology, Shanghai 200237, China</i>
16:10-16:40	Multistep Inorganic Synthesis: A Next Step of Chemical Synthesis with ALD (keynote) Norifusa Satoh <i>Research Center for Macromolecules and Biomaterials, National Institute for Materials Science, Tsukuba, 305-0044</i>
16:40-17:00	Comparative Study of H₂O and H₂O₂ Oxidants for SiO₂ Atomic Layer Deposition Using Tris(dimethylamino) silane: A Computational Investigation (invited) Youngho Kang <i>Department of Materials Science and Engineering, Incheon National University, Incheon 22012, Korea</i>
17:00-17:15	Density Functional Insights Coupled Numerical Nucleation Model for Inherently Selective Atomic Layer Deposition Yanwei Wen ¹ , Yuxiao Lan ¹ , Haojie Li ¹ , Bin Shan ¹ and Rong Chen ^{2,*} <i>School of Materials Science and Engineering, Huazhong University of Science and Technology, Hubei 430074, China</i>

Friday, October 18, 15:50 –17: 10	
Session C2 Meeting room C Session Chair: Prof. Junling Lu	
15:50-16:10	Synthesizing atomically dispersed catalysts by Atomic Layer Deposition (invited) Jiankang Zhang <i>Interdisciplinary Research Center of Biology & Catalysis, School of Life Sciences, Northwestern Polytechnical University, Xi'an 710072, P. R. China</i>
16:10-16:25	ALD ultrathin amorphous TiO₂ film in a fluidized bed reactor for improving the weatherability of TiO₂ pigment Jing Guo, Bingkang Niu, Huifang Lou, Zhengyi Chao, Youzhi Liu <i>Shanxi Province Key Laboratory of Chemical Process Intensification, North University of China, Taiyuan 030051, China</i>

16:25-16:40	<p>High Crystallinity Yttrium-doped ZrO₂ under 2 nm through Atomic Layer Modulation</p> <p>Ngoc Le Trinh¹, Bonwook Gu¹, Wonjoong Kim¹, Byung-ha Kwak², Hyun-Mi Kim³, Hyeongkeun Kim³, Youngho Kang¹, Il-Kwon Oh² and Han-Bo-Ram Lee^{1*}</p> <p><i>Department of Materials Science and Engineering, Incheon National University, Incheon, Korea</i></p>
16:40-17:10	<p>Atomic layer deposition of the geometry separated Lewis and Brønsted acid sites for cascade catalysis glucose conversion (keynote)</p> <p>Jun Huang</p> <p><i>Laboratory for Catalysis Engineering, School of Chemical and Biomolecular Engineering, Sydney Nano Institute, the University of Sydney, Sydney, NSW 2006, Australia</i></p>

Saturday, October 19, 9:00 –10: 25	
Session A3 Meeting room A	
Session Chair: Prof. Lance Li	
09:00-09:30	<p>Improvement of GaN/dielectric interface properties using atomic layer deposition (Keynote)</p> <p>Toshihide Nabatame</p> <p><i>National Institute for Materials Science, Tsukuba, Ibaraki, Japan, 305-0044</i></p>
09:30-09:50	<p>Building a Spiking Sensory Neuron with Oxide-based Neuromorphic Devices (invited)</p> <p>Changjin Wan</p> <p><i>School of Electronic Science and Engineering, Nanjing University, Nanjing, Jiangsu Province, China, 210023</i></p>
09:50-10:10	<p>Evidence of Oxygen Vacancy Generation as Physical Origin of Endurance Fatigue of Si FeFET with TiN/Hf_{0.5}Zr_{0.5}O₂/SiO_x/Si Gate Stacks (invited)</p> <p>Xiaolei Wang</p> <p><i>Institute of Microelectronics of the Chinese Academy of Sciences (IMECAS), Beijing, 100029, China</i></p>
10:10-10:25	<p>Insight into Temperature-dependent Ferroelectric Polarization Switching Characteristics in Ga-Doped HfO₂ Thin Films</p> <p>Yu-Chun Li¹, Zi-Ying Huang¹, and Hong-Liang Lu^{1,*}</p> <p><i>State Key Laboratory of ASIC and System, Shanghai Institute of Intelligent Electronics & Systems, School of Microelectronics, Fudan University, Shanghai 200433, China; Zhangjiang Fudan International Innovation Center, Shanghai 201203, China; National Integrated Circuit Innovation Center, Shanghai 201203</i></p>

Saturday, October 19, 9:00 –10: 25	
Session B3 Meeting room B Session Chair: Prof. Norifusa Satoh	
09:00-09:20	A Paste-Like Patterning Resist for Area-Selective ALD (invited) Yanhao Yu <i>Department of Materials Science and Engineering, Southern University of Science and Technology, Shenzhen, Guangdong, 518055</i>
09:20-09:50	Rediscovery of Atomic Layer Deposition to Overcome the Limitations of Semiconductor Manufacturing (keynote) Han-Bo-Ram Lee <i>Materials Science & Engineering, Incheon National University, Incheon, Korea, 22012</i>
09:50-10:10	Study on Area-Selective Atomic Layer Deposition of Al₂O₃ with a Series of Al Precursors(invited) Il-Kwon Oh <i>Department of Electrical and Computer Engineering, Ajou University, Korea</i>
10:10-10:25	Atomic Layer Deposition of Molybdenum Film using Metal Organic Precursors Bonwook Gu ¹ , Kieran G Lawford ² , Kwang Yong An ¹ , Seán T. Barry ² , Han-Bo-Ram Lee ^{1*} <i>Department of Materials Science and Engineering, Incheon National University, Incheon 22012, Republic of Korea</i>

Saturday, October 19, 9:00 –10: 25	
Session C3 Meeting room C Session Chair: Prof. Se Hun Kwon	
09:00-09:20	Advancements in Surface Engineering through Atomic Layer Deposition for Lithium Batteries (invited) Jin Xie <i>School of Physical Science and Technology & Shanghai Key Laboratory of High-resolution Electron Microscopy, Shanghai Tech University, China</i>
09:20-09:40	All-Perovskite Tandem Solar Cells (invited) Dewei Zhao <i>College of Materials Science and Engineering, Sichuan University, Chengdu 610065, China</i>
09:40-09:55	Highly Durable Pt Based Fuel Cell Catalysts via Atomic Layer Deposition Xiao Liu ¹ , Hang Liu ² , Yuxin Gao ² , Bin Shan ² and Rong Chen ¹ <i>State Key Laboratory of Intelligent manufacturing Equipment and Technology, School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan, China, 430074</i>

09:55-10:25	<p>Precise Surface Modification of Solid Fuel Particles by Atomic/Molecular Layer Deposition: Enhanced Safety, Stability, and Energy Release Performances (keynote)</p> <p>Hao Feng <i>Xi'an Modern Chemistry Research Institute 168 E. Zhangba Road, Xi'an, Shaanxi, China, 710065</i></p>
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Saturday, October 19, 10:50 –12:15	
<p>Session A4 Meeting room A Session Chair: Prof. Toshihide Nabatame</p>	
10:50-11:20	<p>Integration of Single-Crystal High-k Dielectrics with 2D Monolayer Transistors (keynote)</p> <p>Lain-Jong Li <i>Department of Mechanical Engineering, The University of Hong Kong, Hong Kong, China</i></p>
11:20-11:40	<p>Atomic-layer-deposited elemental chalcogen thin films for nanoelectronics (invited)</p> <p>Joonki Suh <i>Department of Materials Science and Engineering & Graduate School of Semiconductor Materials and Devices Engineering, Ulsan National Institute of Science and Technology, Ulsan 44919, Republic of Korea</i></p>
11:40-12:00	<p>Direct deposition of high-k dielectrics on 2D-materials by ALD and its device applications (invited)</p> <p>Li Zheng <i>State Key Laboratory of Materials for Integrated Circuits, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, 200050</i></p>
12:00-12:15	<p>Oxidizer Engineering of ALD for Efficient Production of ZrO₂ Capacitors in DRAM</p> <p>Xinyi Tang, Yuanbiao Li, Songming Miao, Xiao Chen, Guangwei Xu, Di Lu, Shibing Long <i>University of Science and Technology of China, Hefei, 230026</i></p>

Saturday, October 19, 10:50 –12:15	
<p>Session B4 Meeting room B Session Chair: Prof. Han-Bo-Ram Lee</p>	
10:50-11:10	<p>Surface reaction kinetics for Inherent Selective Atomic Layer Deposition of Tantalum oxide on Cu/SiO₂ (invited)</p> <p>Cao kun <i>School of Mechanical Science and Engineering, Huazhong University of Science and</i></p>

	<i>Technology, Wuhan, China, 430074</i>
11:10-11:40	Surface adsorption/desorption reactions and precursor design for ALD/ALE (keynote) Sang Ick Lee <i>Semiconductor R&D Center, DNF Co. Ltd.</i>
11:40-12:00	Advanced Atomic Level Patterning Process (invited) Woo Hee Kim <i>Department of Materials Science and Chemical Engineering, Hanyang University, Korea</i>
12:00-12:15	High Temperature TiN Atomic Layer Deposition using Various Nitrogenating Reactants Hyewon Park ¹ , Yoonseo Choi ¹ , and Han-Bo-Ram Lee ^{1*} <i>Department of Materials Science and Engineering, Incheon National University, Incheon 2012, Republic of Korea</i>

Saturday, October 19, 10:50 –12:10	
Session C4 Meeting room C	
Session Chair: Prof. Hao Feng	
10:50-11:10	Particle Atomic Layer Deposition for Battery Applications: From Liquid to Solid-state (invited) Ming Xie <i>BattFlex (Wuhan) Technology Co., Ltd</i>
11:10-11:25	Revealing the mystery between Pt-Ti sites and exposed Pt sites in TiO_x-modified Pt catalyst Huibin Ge ¹ , Yong Qin ² <i>Interdisciplinary Research Center of Biology & Catalysis, School of Life Sciences, Northwestern Polytechnical University, Xi'an 710072, China</i>
11:25-11:40	Catalytically Ultrathin Titania Coating to Enhance Energy Storage and Release of Aluminum Hydride via Atomic Layer Deposition Zhijia Hu, Xiao Liu*, and Rong Chen* <i>State Key Laboratory of Intelligent Manufacturing Equipment and Technology, School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, Hubei, People's Republic of China</i>
11:40-12:10	Atomic Scale Surface Modification of Nanomaterials for Electrochemical Applications (keynote) Se Hun Kwon <i>School of Materials Science and Engineering, Pusan National University, Busan, 46241, Republic of Korea</i>

Saturday, October 19, 14:00–15:25	
Session A5 Meeting room A Session Chair: Prof. Yi Zhao	
14:00-14:30	Plasma-Enhanced Atomic Layer Etching for Metal and Dielectric Materials (keynote) Heeyeop Chae <i>School of Chemical Engineering, Sungkyunkwan University (SKKU), Suwon, 16419, Korea</i>
14:30-14:50	Ferroelectric AlScN integrated on Silicon (invited) Jiuren Zhou <i>Hangzhou Institute of Technology, Xidian University, Hangzhou, Zhejiang, 311200</i>
14:50-15:10	Atomic layer etching of metals and metal oxides for semiconductor applications (invited) Taewook Nam <i>Department of Semiconductor Systems Engineering, Sejong University, Seoul 05006, South Korea</i>
15:10-15:25	Effect of ozone pulse time on the IGZO film Characteristics deposited by thermal atomic layer deposition Yongqing Shen, Jinjuan Xiang*, Zhengying Jiao, Liguochai, Yuting Chen, Guilei Wang*, Chao Zhao <i>Beijing Superstring Academy of Memory Technology, Beijing, China, 100176</i>

Saturday, October 19, 14:00–15:25	
Session B5 Meeting room B Session Chair: Prof. Sang Ick Lee	
14:00-14:20	Atomic Layer Deposition of Platinum Group Metals and Its Application (invited) Minsu Kim <i>Department of Advanced Materials Engineering, Kyonggi University, Suwon, Gyeonggi-do (Korea), 16227</i>
14:20-14:40	Simulation of fluidization-atomic layer deposition of nanoparticle agglomerates by CFD-DEM approach (invited) Daoyin Liu <i>Key Laboratory of Energy Thermal Conversion and Control of Ministry of Education, Southeast University, Nanjing 210096, Jiangsu, China</i>
14:40-14:55	Direct Processing by μDALP™. Precision Coatings for Next Gen Devices Masoud Akbari, Simone Santucci, Mira Baraket, Ivan Kundrata and Maksym Plakhotnyuk* <i>Masoud Akbari, Simone Santucci, Mira Baraket, Ivan Kundrata and Maksym Plakhotnyuk* ATLANT 3D, Taastrup, Denmark</i>
14:55-15:10	Nano to Micro: Or How to Combine ALD with PVD Amit Sharma ¹ , Israel Ayala ¹ , Xavier Maeder ² , Carlos Guerra ¹ <i>Swiss Cluster AG, Bahnhofstrasse 19, 3700 Spiez, Switzerland</i>

15:10-15:25	<p>Plasma-enhanced atomic layer deposited highly conductive niobium carbide thin films as next-generation diffusion barriers for Cu and Ru interconnects</p> <p>Chaehyun Park¹, Minjeong Kweon, Sang Bok Kim, Soo-Hyun Kim*</p> <p><i>School of Semiconductor Materials and Devices Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan 44919, Republic of Korea</i></p>
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Saturday, October 19, 14:00–15:30	
Session C5 Meeting room C	
Session Chair: Prof. Junjie Zhao	
14:00-14:15	<p>Vapor phase deposition of conformal organic-inorganic hybrid films and their applications</p> <p>Yixian Wang, Qingfeng Chang, Tuo Wang*, and Jinlong Gong</p> <p><i>School of Chemical Engineering and Technology, Tianjin University, Tianjin, 300072</i></p>
14:15-14:30	<p>Low-temperature crystallization of Hf_{0.5}Zr_{0.5}O₂ thin films fabricated using H₂O₂ as the ALD oxidant</p> <p>Haoming Che¹, Takashi Onaya¹, Masaki Ishii², Hiroshi Taka², and Koji Kita¹</p> <p><i>Department of Advanced Materials Science, The University of Tokyo, 5-1-5 Kashiwanoha, Kashiwa, Chiba, Japan, 277-8561</i></p>
14:30-15:00	<p>Molecular Layer Deposition of Conjugated Microporous Polymers for Molecular Separations (keynote)</p> <p>Yong Wang</p> <p><i>School of Energy and Environment, Southeast University, Nanjing; College of Chemical Engineering, Nanjing Tech University, Nanjing 211816, P. R. China</i></p>
15:00-15:15	<p>A theoretical study on the adsorption of Cp(CH₃)₅Ti(OMe)₃ as a precursor for TiN ALD</p> <p>Jae Min Jang¹, Hye Won Park², Soo-Hyun Kim³, Han-Bo-Ram Lee², and Bonggeun Shong¹</p> <p><i>Chemical Engineering, Hongik University, Seoul, South Korea, 04066</i></p>
15:15-15:30	<p>Shielding CO₂-Philic Sites in Trimmed Covalent Organic Framework Pores by Atomic Layer Deposition</p> <p>Zhiwen Chen,^[a,b] Ming Zhang,^[a,b] Yubin Hu,^[a,b] Yingwu Luo,^[a] Zheng Yang,^[b] Junjie Zhao^{*[a,b]}</p> <p><i>State Key Laboratory of Chemical Engineering, College of Chemical and Biological Engineering, Zhejiang University 866 Yuhangtang Rd, Hangzhou 310058, China</i></p>

Saturday, October 19, 15:50–17:15	
Session A6 Meeting room A Session Chair: Prof. Heeyeop Chae	
15:50-16:20	Atomic Layer Deposition of Hf_{1-x}Zr_xO₂ Anti-ferroelectric Films for Advanced Memory Devices (Keynote) Yi Zhao <i>College of Information Science and Electronic Engineering, Zhejiang University, Hangzhou, Zhejiang, 310027</i>
16:20-16:40	ALD-based Memcapacitor for Efficient Computing (invited) Zhigang Ji <i>School of Integrated Circuits, Shanghai Jiaotong University, 200240</i>
16:40-17:00	Recent Advances in ALD of Mo-Based Electrodes for High-Performance DRAM Capacitors (invited) Jeong Hwan Han <i>Department of Materials Science and Engineering, Seoul National University of Science and Technology (Seoultech), Seoul 01811, Republic of Korea</i>
17:00-17:15	Optimization and Application Study of the Device based on Hafnium oxide Ferroelectric Thin Films Li zhenhai ^{1*} , Li Qingxuan ¹ , and Chen lin ^{23*} <i>School of integrated Circuits, Anhui University, Anhui 230601</i>

Saturday, October 19, 15:50–17:15	
Session B6 Meeting room B Session Chair: Prof. Jiaming Sun	
15:50-16:10	Multi-Scale Fluidized Bed Reactor for Surface Coating and Modification of Powder-Based Materials (invited) Hao Van Bui <i>Faculty of Materials Science and Engineering, Phenikaa University, Hanoi 12116, Vietnam</i>
16:10-16:30	User experience of hollow cathode plasma-assisted atomic layer deposition for various thin films (invited) Byung Joon Choi <i>The Department of Materials Science and Engineering, Seoul National University of Science and Technology, Seoul 01811, Rep. of Korea</i>
16:30-16:45	Impact of application requirements on ALD tool design Sami Sneek <i>Beneq Oy, Olarinluoma 9, 02200 Espoo, Finland</i>
16:45-17:00	High Performances of 3D Vertical Ferroelectric NAND FeFETs with HfLaO FE Layer and TiO₂-Channel Xujin Song, Shangze Li, Dijiang Sun, Chenxi Yu, Xiaoyan Liu, and Jinfeng Kang <i>School of Integrated Circuits, Peking University, Beijing, 100871</i>

17:00-17:15	Theoretical prediction on the configuration of hydroxyls on the surfaces of HfO₂ Sujin Kwon and Bonggeun Shong <i>Chemical Engineering, Hongik University, Seoul, South Korea, 04066</i>
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Saturday, October 19, 15:50–17:25	
Session C6 Meeting room C Session Chair: Prof. Yong Wang	
15:50-16:10	Role of Atomic Layer Deposited ZnO in Confined Interfacial Synthesis of MOF Turing Patterns (invited) Junjie Zhao <i>College of Chemical & Biological Engineering, Zhejiang University, Hangzhou, China</i>
16:10-16:25	High-Temperature Atomic Layer Deposition of SiO₂ using Metal-Organic Si Precursor Sojeong Eom ¹ , Sanghun Lee ¹ , Seonyeong Park ¹ , Seunggyu Na ¹ , Jisang Yoo ¹ , Seung-min Jung ² , Hyungjun Kim ^{1*} <i>School of Electrical and Electronic Engineering, Yonsei University, 50 Yonsei-Ro, Seodaemun-Gu, Seoul 03722, Korea</i>
16:25-16:55	ALD and Joule Heating-Induced Synthesis of High-Entropy Nano-Alloys for Enhanced Water Electrolysis Performance (keynote) Kwan W. Tan <i>School of Materials Science and Engineering, Nanyang Technological University, Singapore 639798</i>
16:55-17:10	Applications of atomic layer deposition in Perovskite Solar Cells Weizhen Wang <i>Shenzhen Yuansu Optoelectronics Technology CO LTD, Shenzhen</i>
17:10-17:25	Effects of Interlayer Formation by Oxidants and Substrates on Properties of ALD ZrO₂ Thin Film Seonyeong Park <i>School of Electrical and Electronic Engineering, Yonsei University, Seodaemun-Gu, Seoul 03722, Korea</i>

18:00	Banquet (Shanghai Ballroom)
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Sunday, October 20, 9:00–9:55	
Session A7 Meeting room A Session Chair: Prof. Lin Chen	
09:00-09:20	ALD-driven passivation layer for IGZO-based TFTs devices (invited) Gang He <i>School of Materials Science and Engineering, Anhui University, Hefei 230601, China</i>
09:20-09:40	Optoelectronic Artificial Synaptic Devices Based on ALD/MLD Inorganic-Organic Hybrid Thin Films (invited) Aidong Li <i>National Laboratory of Solid State Microstructures, College of Engineering and Applied Sciences, Collaborative Innovation Center of Advanced Microstructures, Nanjing University, Nanjing 210093, P. R. China</i>
09:40-09:55	PEALD TiO₂-based FeFET Memory with Hf_{0.45}Zr_{0.55}O_x Ferroelectric Films Wei Meng, Binbin Luo, Ze Shang, Ming Yang, Bao Zhu, Xiaohan Wu, Shi-Jin Ding* <i>School of Microelectronics, Fudan University, Shanghai, 200433</i>

Sunday, October 20, 9:00–9:55	
Session B7 Meeting room B Session Chair: Prof. Seong-Yong Cho	
09:00-09:20	Fabrication of Various Functional Optoelectronic Devices Utilizing Atomic Layer Deposition Technique (invited) Duan Yu <i>State Key Laboratory of Integrated Optoelectronics, College of Electronic Science and Engineering, Jilin University, Changchun 130012, China</i>
09:20-09:40	Electroluminescence from Rare Earth doped Gallium Oxide and Gallate Films grown by Atomic Layer Deposition (invited) Jiaming Sun <i>School of Material Science and Engineering, Nankai University, City, Tianjin, 300350</i>
09:40-09:55	Plasma Enhanced Atomic Layer Deposition of SiO₂ Thin Film for Efficient Encapsulation of Organic Light-emitting Devices Zheng chen ^{1,2} , Yu Duan ^{1,2} <i>College of Physics, Changchun University of Science and Technology, Changchun, Jilin Province</i>

Sunday, October 20, 9:55–11:00	
Session A8 Meeting room A Session Chair: Prof. Gang He	
09:55-10:15	ALD Based Flexible Memristor for Low Power In-memory computing (invited) Tianyu Wang <i>School of Integrated Circuits, Shandong University, Jinan 250100, China</i>
10:15-10:30	Atomic-Layer-Deposited InSnO Thin-Film Transistors with Scaled Channel Length Binbin Luo ¹ and Shi-jin Ding* <i>School of Microelectronics, Fudan University, Shanghai 200433, China</i>
10:30-10:45	Fluorine-Treated Top-gate InAlZnO TFT for 2T0C DRAM with >1 ks Retention Time at $V_{\text{hold}} = 0$ V Linlong Yang ¹ , Bao Zhu ¹ , Xiaohan Wu ^{1,2*} , Shi-Jin Ding ^{1,2*} <i>School of Microelectronics, Fudan University, Shanghai 200433, China</i>
10:45-11:00	First Demonstration of BEOL-Compatible InMgO Transistor by Atomic-Layer-Deposited Ming Yang, Binbin Luo, Wei Meng , Bao Zhu, Xiaohan Wu, Shi-Jin Ding* <i>School of Microelectronics, Fudan University, Shanghai, 200433</i>

Sunday, October 20, 9:55–10:50	
Session B8 Meeting room B Session Chair: Prof. Yu Duan	
09:55-10:15	Atomic Layer Deposition Approaches for Future Emissive AR/VR Applications (invited) Seong-Yong Cho <i>Dept. of Photonics and Nanoelectronics, Hanyang University, Ansan 15588, Korea</i>
10:15-10:35	Self-developed ALD Equipment and its Application in High Mobility IGZO-TFTs (invited) Xinwei Ding <i>Key Laboratory of Advanced Display and System Application, Ministry of Education, Shanghai University, Shanghai, 200072</i>
10:35-10:50	Low residual stress flexible thin film encapsulation of 2 mm bending radius based on atomic layer deposition Guanran Wang, Yu Duan* <i>Affiliation: Coll Elect Sci & Engn, State Key Lab Integrated Optoelect, Jilin Univ, Changchun, Jilin province, 130012</i>

10:50-11:05	<p>Atomic-Scale Stress Modulation of Nanolaminate for Micro-LED Encapsulation</p> <p>Di Wen, JiaCheng Hu, Ruige Ruan, Kun Cao, and Rong Chen*</p> <p><i>State Key Laboratory of Intelligent Manufacturing Equipment and Technology, School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, Hubei, People's Republic of China</i></p>
11:05-11:20	<p>Future of ultra-flexible thin film encapsulation of optoelectronic devices based on atomic layer deposition</p> <p>Yuhan Wang, Yu Duan*</p> <p><i>Affiliation: Coll Elect Sci & Engr, State Key Lab Integrated Optoelect, Jilin Univ, Changchun, Jilin province, 130012</i></p>

Friday, October 18, 17:15-18:30	
Session Poster Shanghai Ballroom Anteroom	
P01	<p>Atomic Layer Deposition of Aluminum-Molybdenum Oxide Films: Water and Waterless Processes</p> <p>Abay M. Maksumova, Ilmutdin M. Abdulagatov</p> <p><i>Department of Physical and Organic Chemistry, Dagestan State University, Makhachkala, Russian Federation, 367000</i></p>
P02	<p>Comparative Study on Lateral and Vertical Controlling of Atomic Arrangement in Multielement Oxides Grown by Atomic Layer Deposition; a Case Study of Dy-Doped HfO₂</p> <p>Byung-ha Kwak,¹ Ngoc Le Trinh², Wonjoong Kim², Han-Bo-Ram Lee² and Il-kwon Oh^{1,*}</p> <p>¹<i>Department of Intelligence Semiconductor Engineering, Ajou University, Suwon, Korea</i></p> <p>²<i>Department of Materials Science and Engineering, Incheon National University, Incheon, Korea</i></p>
P03	<p>Investigating the ALD Deposition Mechanism of AlO_x Barriers in Relation to ODT Coverage</p> <p>Boxuan Li¹, Yanwei Wen², and Rong Chen</p> <p>¹ <i>School of Materials Science and Engineering, </i> ²<i>School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Hubei 430074, China.</i></p>
P04	<p>Voltage Shift Induced by Interfacial Dipole in the Dielectric Stack of Atomic-Layer Deposited Nb₂O₅ Ultrathin Insertion Layer</p> <p>Caiyu Shi¹, Lei Shen¹, Ziyang Huang¹, Xinbin Ying¹, Xing Yu¹ and Hongliang Lu^{1*}</p> <p><i>Affiliation: State Key Laboratory of ASIC and System, Shanghai Institute of Intelligent Electronics & Systems, School of Microelectronics, Fudan University, Shanghai, 200433, China.</i></p>
P05	<p>Growth and Corrosion Resistance of Ultrathin Al₂O₃/TiO₂ Films on Polydopamine-Modified Copper by Atomic Layer Deposition</p> <p>Chi Yan¹, Jialin Li¹, Haobo Wang¹, CuiLiu¹ and Hongbo Li¹</p> <p><i>East China University of Science and Technology, Shanghai, China, 200237.</i></p>
P06	<p>ALD Conformality Analysis Using Lateral High Aspect Ratio Test Structures</p> <p>Feng Gao¹, Anish Philip², Jussi Kinnunen¹, Mikko Utriainen¹</p> <p>¹ <i>Chipmetrics Ltd., Joensuu, Finland, 80130</i></p> <p>² <i>Aalto University, School of Science and Technology, Espoo, Finland, 02150</i></p>
P07	<p>Analysis of Growth Rate and Consumption under the Impact of CVD caused by the Substrate Move in Spatial ALD</p> <p>Geng Ma¹, Fan Yang, Bin Shan, Rong Chen</p> <p><i>Affiliation: School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, 430074</i></p>

<p>P08</p>	<p>ALD Combined with Super Hydrophobic Modification Enhancing the Water Vapor Barrier of PET for Photovoltaic Haobo Wang, Chi Yan, Chengyou Zhang, Hongbo Li and Cui Liu <i>School of Materials Science and Engineering, East China University of Science and Technology, Shanghai, 200237</i></p>
<p>P09</p>	<p>Kinetic Monte Carlo Simulation of The Atomic Layer Deposition of Hafnium Oxide Haojie Li¹, Yanwei Wen¹, Bin Shan¹ and Rong Chen^{2,*} ¹ <i>School of Materials Science and Engineering, </i> ²<i>School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Hubei 430074, China.</i></p>
<p>P10</p>	<p>Atomic Layer Deposition of Nanometric Metal Oxides for Corrosion Protection of Al Alloy Surfaces Jia-lin Li¹, Chi Yan², and Cui Liu <i>East China University of Science and Technology, Shanghai, 200237</i></p>
<p>P11</p>	<p>Plasma Fluorination of ALD In₂O₃ for Thin-Film Transistors with Remarkable Stability Jinxiong Li¹, Shanshan Ju¹, Songjie Yang¹, Xu Tian¹, Lei Lu², Shengdong Zhang², and Xinwei Wang¹ ¹ <i>School of Advanced Materials, Peking University, Shenzhen 518055, China</i> ² <i>School of Electronic and Computer Engineering, Peking University, Shenzhen 518055, China</i></p>
<p>P12</p>	<p>Large Positive V_{FB} Shift in MOS Capacitors Achieved by The Insertion of Ga₂O₃ Dipole Layer Lei Shen¹, Xiao-Na Zhu¹, Yu-Chun Li¹, Cai-Yu Shi¹, Zi-Ying Huang¹, and Hong-Liang Lu^{1,*} ¹<i>State Key Laboratory of ASIC and System, Shanghai Institute of Intelligent Electronics & Systems, School of Microelectronics, Fudan University, Shanghai 200433, China</i></p>
<p>P13</p>	<p>Construction of Amorphous Mesentropic Oxide Protective Layer-assisted Stable Zinc Metal Anode by ALD Liling Fu, Shuai Zhang, Shaozhong Chang, Ai-Dong Li* <i>National Laboratory of Solid-State Microstructure, College of Engineering and Applied Sciences, Collaborative Innovation Center of Advanced Microstructures, Jiangsu Key Laboratory of Artificial Functional Materials, Nanjing University, 210093, P.R China</i></p>
<p>P14</p>	<p>Structural Optimization and Regulation of Ultrathin Bilayer Organic-Inorganic Hybrid Memristors by Molecular Layer Deposition Lin Zhu, Shuai Zhang, Chu-Yi Zhang, Ai-Dong Li* <i>National Laboratory of Solid State Microstructures, Materials Science and Engineering Department, College of Engineering and Applied Sciences, Collaborative Innovation Center of Advanced Microstructures, Nanjing University, Nanjing 210093, P. R. China</i></p>

<p>P15</p>	<p>High-Barrier Ultrathin Bendable Nanolaminate Encapsulation with a 1.2 mm Bending Radius Ruige Yuan¹, Di Wen², Fan Yang* and Rong Chen* <i>Affiliation: School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan, China, 430074</i></p>
<p>P16</p>	<p>Optoelectronic Artificial Synapses Based on ZnO Nanoporous Hybrid Thin Films by ALD/MLD Song Sun, Shuai Zhang, Lin Zhu, and Ai-Dong Li* <i>National Laboratory of Solid State Microstructures, College of Engineering and Applied Sciences, Nanjing University, Nanjing, Jiangsu Province, 210093</i></p>
<p>P17</p>	<p>Enhancing the Thermal Stability of Pt Nanoparticles by Constructing Island-isolated Configuration via Area Selective Atomic Layer Deposition Rongli Ye, Kun Cao*, and Rong Chen* <i>Affiliation: State Key Laboratory of Intelligent Manufacturing Equipment and Technology, School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, Hubei, People's Republic of China</i></p>
<p>P18</p>	<p>Nanoscale Surface Strategies for Reducing Foulant Adhesion in Emulsion Polymerization Weiwei Du and Junjie Zhao <i>State Key Laboratory of Chemical Engineering, College of Chemical and Biological Engineering, Zhejiang University, Hangzhou, China, 310058</i></p>
<p>P19</p>	<p>Inherently Atomic Layer Deposition of Oxides on Cu/SiO₂ with Redox-Coupled Process Weizhen Wang, Kun Cao¹, Yicheng Li¹, Zilian Qi¹, Bin Shan² and Rong Chen¹ <i>Affiliation: School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan, China, 430074</i></p>
<p>P20</p>	<p>Thermodynamic Modeling of the Processes of Molecular Layering of MoO₃ on β-cristobalite and Monolayers of MoO_x and AlO_x by the DFT method: Comparative Evaluation of the Reactions of MoOCl₄, MoO₂Cl₂ and H₂O S.G. Gadjimuradov¹, S.I. Suleymanov², I.M. Abdulagatov¹, A.I. Abdulagatov¹ ¹<i>Dagestan State University, 43a M. Gadzhievya str., 367000, Makhachkala, Russia</i> ²<i>Analytical Center for Collective Use of the Institute of Physics of the Dagestan Federal Research Center of the Russian Academy of Sciences, 45 M. Gadzhieva str., 367025, Makhachkala, Russia</i></p>

<p>P21</p>	<p>3D HfO₂-Based Capacitor with Superior Energy Storage Properties Yijun Zhang,*¹ Wei Ren,^{*1} Gang Niu,¹ Zenghui Liu¹ and Zuo-Guang Ye*² <i>1 Electronic Materials Research Laboratory Key Laboratory of the Ministry of Education & International Center for Dielectric Research, School of Electronic Science and Engineering, Xi'an Jiaotong University, Xi'an, Shann Xi, 710049, China</i> <i>2 Department of Chemistry and 4D LABS Simon Fraser University Burnaby, BC V5A 1S6, Canada</i></p>
<p>P22</p>	<p>Improved Ferroelectric Properties in Ultra-Thin Ferroelectric Film Compatible with BEOL via ZrO₂ Middle Layer Strategy Yinchi Liu¹, Hongliang Lu¹, Lin Chen^{1,2}, Shijin Ding¹ and Wenjun Liu^{1,2,*} <i>¹School of Microelectronics, Fudan University, Shanghai, P. R. China, 200433</i> <i>²Zhangjiang Fudan International Innovation Center, Fudan University, Shanghai, P. R. China, 201203</i></p>
<p>P23</p>	<p>Atomic Layer Deposition for Surface Modification in Enhancing Electrocatalytic Oxygen Evolution Reaction Yue Huang, Shuai Zhang, Yu Liu, and Ai-Dong Li* <i>National Laboratory of Solid State Microstructures, Materials Science and Engineering Department, College of Engineering and Applied Sciences, Collaborative Innovation Center of Advanced Microstructures, Nanjing University, Nanjing 210093, P. R. China</i></p>
<p>P24</p>	<p>Atomic Layer Modulation (ALM) Process for Preparing Atomic-scale Homogeneous Alloy Thin Films Yeseul Son¹ , Sang-Bok Kim¹ , Debananda Mohapatra¹ , Taehoon Cheon² and Soo-Hyun Kim^{1,*} <i>¹Graduate School of Semiconductor Materials and Devices Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan 44919, Republic of Korea</i> <i>²Center of Core Research Facilities, Daegu 42988, Republic of Korea</i></p>
<p>P25</p>	<p>Efficiently Tuning the Electrical Performance of PBTTC-14 Thin Film via in-situ Controllable Multiple Precursors (Al₂O₃:ZnO) Vapor Phase Infiltration Zhen Jia¹, Xueyang Mu², and Weike Wang* <i>Affiliation: School of Materials Science and Engineering, Shaanxi University of Science & Technology, Xi'an, Shaanxi 710021, China</i></p>
<p>P26</p>	<p>Zirconium Carbide (ZrC_x) Thin Films Prepared by Plasma-Enhanced Atomic Layer Deposition as a Diffusion Barrier for Ru & Cu Metallization Minjeong Kweon¹, Chaehyun Park, Sang Bok Kim, and Soo-Hyun Kim* <i>¹Graduate School of Semiconductor Materials and Devices Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Republic of Korea</i></p>

<p>P27</p>	<p>Ultra-Fast Hydrogen Detection with SnO₂/In₂O₃ Thin Film Sensors Fabricated by Atomic Layer Deposition</p> <p>Shuai Zhang, Chen Wang, and Ai-Dong Li*</p> <p><i>National Laboratory of Solid State Microstructures, Materials Science and Engineering Department, College of Engineering and Applied Sciences, Collaborative Innovation Center of Advanced Microstructures, Nanjing University, Nanjing 210093, P. R. China</i></p>
<p>P28</p>	<p>3nm Thin In₂O₃ Channel via different Precursor Recipe Comparison for Bottom Gate Thin Film Transistor</p> <p>Yan Xu¹, Xuewei Jiang², Fan Yang* and Rong Chen*</p> <p><i>School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, China</i></p>
<p>P29</p>	<p>Scalable Deposition of SnO₂ ETL via SALD for Large-Area Inverted Perovskite Solar Modules</p> <p>Xuewei Jiang, Bin Shan*, Fan Yang*, Rong Chen</p> <p><i>Affiliation: School of Materials Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, People's Republic of China ; School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, China</i></p>
<p>P30</p>	<p>Morphological evolution of atomic layer deposited hafnium oxide on aligned carbon nanotube arrays</p> <p>Sujuan Ding¹, Yifan Liu², Qian Shang³, Bing Gao¹, Fenfa Yao¹, Bo Wang¹, Xiaoming Ma¹, Zhiyong Zhang², Chuanhong Jin^{1*}</p> <p>¹ <i>State Key Laboratory of Silicon and Advanced Semiconductor Materials, School of Materials Science and Engineering, Zhejiang University, Hangzhou, Zhejiang 310027, China</i></p> <p>² <i>Key Laboratory for the Physics and Chemistry of Nanodevices and Center for Carbon-based Electronics, School of Electronics, Peking University, Beijing 100871, China</i></p> <p>³ <i>Hunan Institute of Advanced Sensing and Information Technology, Xiangtan University, Xiangtan, Hunan 411105, China</i></p>