

Program Key

Conference Topics

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

Program Overview

Room /Time	Arteveldeforum & Pedro de Gante	Auditorium	Baekeland	Van Eyck	Van Rysselberghe
SuA		TS-SuA: Tutorial I			
SuP	Poster Sessions				
MoM1		PS-MoM1: Plenary Session I			
MoM2		AF1-MoM2: New Precursors and Processes I	ALE-MoM2: Thermal and/or Isotropic ALE I	AF2-MoM2: High Aspect Ratio/High Surface Area/Powder ALD	AA-MoM2: ALD for Solar Energy
MoA		AF1-MoA: New Precursors and Processes II AF2-MoA: Simulation, Modeling and Theory of	ALE1-MoA: Thermal and/or Isotropic ALE II ALE2-MoA: Plasma and/or Anisotropic ALE I	AF3-MoA: Plasma Enhanced ALD AF4-MoA: Surface Science	AA1-MoA: ALD for Catalysis AA2-MoA: ALD for Energy Storage
MoP	Poster Sessions				
TuM1		PS-TuM1: Plenary Session II			
TuM2		AA1-TuM2: ALD for Medical Applications	ALE-TuM2: Atomic Layer Cleaning (ALC), ALE Integrated with ALD, and Alternative ALE Approaches	AF-TuM2: Simulation, Modeling, and Theory of ALD II	AA2-TuM2: ALD for FEOL
TuA		AM1-TuA: ALD for Manufacturing I AM2-TuA: ALD for Manufacturing II	ALE1-TuA: In situ Studies, Mechanisms and Modeling of ALE ALE2-TuA: Plasma and/or Anisotropic ALE II	AF1-TuA: Characterization I AF2-TuA: Characterization II	AA1-TuA: ALD for Display Applications AA2-TuA: ALD for BEOL
TuP	Poster Sessions				
WeM1		PS-WeM1: Plenary Session III			
WeM2		NS-WeM2: 2D Materials I	AA1-WeM2: ALD for Optical Applications	EM-WeM2: Molecular Layer Deposition	AA2-WeM2: ALD for Memory Applications I
WeA		EM1-WeA: Emerging Materials NS-WeA2: 2D Materials II	AS1-WeA: Area Selective Deposition I AS2-WeA: Area Selective Deposition II	EM2-WeA: Vapor Phase Infiltration EM3-WeA: Hybrid Coatings	AA1-WeA: ALD for Memory Applications II AA2-WeA: Emerging Applications of ALD

Sunday Afternoon, June 26, 2022

<p>Tutorials Room Auditorium - Session TS-SuA Tutorial I Moderators: Christophe Detavernier, Ghent University, Belgium, Erwin Kessels, Eindhoven University of Technology, the Netherlands</p>		
1:00pm	<p>INVITED: TS-SuA-1 How I Learned to Stop Worrying and Love the Surface, <i>Seán Barry</i>, Carleton University, Canada</p>	
1:15pm		
1:30pm		
1:45pm	<p>INVITED: TS-SuA-4 Combined Atomic/Molecular Layer Deposition for Designer's Metal-Organic Materials and Inorganic-Organic Multilayers, <i>Maarit Karppinen</i>, Aalto University, Finland</p>	
2:00pm		
2:15pm		
2:30pm	<p>INVITED: TS-SuA-7 Plasma Assisted Atomic Layer Processing and Diagnostics, <i>Sumit Agarwal</i>, Colorado School of Mines</p>	
2:45pm		
3:00pm		
3:15pm	<p>INVITED: TS-SuA-10 Synthesis and Integration of 2D Materials Using ALD, <i>Ageeth Bol</i>, University of Michigan, Ann Arbor</p>	
3:30pm		
3:45pm	BREAK	
4:00pm	<p>INVITED: TS-SuA-13 How Did (and Will) Atomic Scale Processing Change the Logic and Memory Industries?, <i>Giuseppe Alessio Verni</i>, A. Illiberi, ASM, Belgium; <i>P. Deminskyi</i>, ASM Microchemistry Ltd., Finland; <i>M. Givens</i>, ASM, Belgium</p>	
4:15pm		
4:30pm		
4:45pm	<p>INVITED: TS-SuA-16 Artificial Interphases for Interface Control in Li-ion Batteries, <i>Philippe Vereecken</i>, IMEC, Belgium</p>	
5:00pm		
5:15pm		

Atomic Layer Etching

Room Arteveldeforum & Pedro de Gante - Session ALE-SuP

Atomic Layer Etching Poster Session

6:00pm

ALE-SuP-1 Anisotropic Atomic Layer Etching of Sn by Formation of Hydride/Chloride, **Doo San Kim**, Y. Jang, H. Gil, G. Yeom, Sungkyunkwan University, Korea (Republic of)

ALE-SuP-2 Atomic-Scale Control of a Native Oxide Thickness on Si for Direct Wafer Bonding, **Youngseok Lee**, Y. You, C. Cho, I. Seong, W. Jeong, J. Lee, S. Kim, S. You, Chungnam National University, Korea (Republic of)

ALE-SuP-3 Atomic Layer Etching of Al₂O₃ with NF₃ Plasma Fluorination and Trimethylaluminum Ligand Exchange, **Hyeongwu Lee**, J. Kim, D. Shim, Y. Kim, H. Chae, Sungkyunkwan University (SKKU), Korea (Republic of)

ALE-SuP-4 Low-Temperature Plasma Atomic Layer Etching of Titanium Nitride, **Heeju Ha**, D. Shim, J. Kim, Y. Kim, H. Chae, Sungkyunkwan University (SKKU), Korea (Republic of)

ALE-SuP-5 Prediction of Chemical Evolution and Its Impact on PEALE of Silicon Nitride with Hydrofluorocarbons, **Erik Cheng**, G. Hwang, University of Texas at Austin; P. Ventzek, Z. Chen, S. Sridhar, A. Ranjan, Tokyo Electron America

ALE-SuP-6 Achieving High Uniformity in Atomic-Scale Etching via a Purgeless Atomic Layer Etching Approach, **Yebin You**, Y. Lee, C. Cho, I. Seong, W. Jeong, J. Lee, S. Kim, Y. You, M. Choi, T. Yuk, S. You, Chungnam National University, Korea (Republic of)

ALE-SuP-7 Thermal Atomic Layer Etching of Tantalum Nitride With Plasma Surface Oxidation and Fluorination, **Hojin Kang**, H. Chae, Y. Kim, SKKU, Korea (Republic of)

ALE-SuP-8 New Oxidants for Cu ALE via In Situ XAS Mechanistic Study, **Adam Hock**, P. Panariti, Illinois Institute of Technology

Monday Morning, June 27, 2022

Plenary Session Room Auditorium - Session PS-MoM1 Plenary Session I Moderators: Christophe Detavernier, Ghent University, Belgium, Erwin Kessels, Eindhoven University of Technology, Netherlands		
8:45am		
9:00am	INVITED: PS-MoM1-2 Plenary Lecture: New Process Requirements Driven by More Than Moore and More Moore Device Integration Innovations, Steven Steen , ASML; <i>P. Leray</i> , IMEC, Belgium	
9:15am		
9:30am		
9:45am	INVITED: PS-MoM1-5 ALD 2020 Innovator Awardee Talk: Innovations in ALD Chemistry Open the Door to Applications, Mikko Ritala , University of Helsinki, Department of Chemistry, Finland	
10:00am		
10:15am	Break & Exhibits	
10:30am		

Monday Morning, June 27, 2022

	ALD Applications Room Van Rysselberghe - Session AA-MoM2 ALD for Solar Energy Moderators: Wei-Min Li, Jiangsu Leadmicro Nano-Equipment Technology Ltd., China, Paul Poodt, Holst Centre / TNO, Netherlands	ALD Fundamentals Room Auditorium - Session AF1-MoM2 New Precursors and Processes I Moderators: Sean Barry, Carleton University, Canada, Elisabeth Blanquet, SIMaP, CNRS, University Grenoble Alpes, France
10:45am	INVITED: AA-MoM2-1 Atomic Layer Deposition for Silicon-Perovskite Tandem Cells, Bart Macco , <i>N. Phung, E. Kessels, M. Creatore</i> , Eindhoven University of Technology, Netherlands	AF1-MoM2-1 Atomic Layer Deposition of Ruthenium Dioxide Thin Films Based on Redox Reactions between RuO ₄ and Alcohols, Matthias Minjauw , <i>N. Poonkottil, A. Werbrouck, C. Detavernier, J. Dendooven</i> , Ghent University, Belgium
11:00am		AF1-MoM2-2 Low Temperature ALD of Ni from Novel Precursors, Anton Vihervaara , <i>T. Hatanpää, K. Mizohata, G. Popov, M. Chundak, M. Ritala</i> , University of Helsinki, Finland
11:15am	AA-MoM2-3 ALD Al ₂ O ₃ /SiO _x Multilayers for c-Si Surface Passivation: Modification of Interface Properties by Voltage Stress and Plasma Treatments, Armin Richter , <i>H. Patel, C. Reichel, P. Masuch, J. Benick, S. Glunz</i> , Fraunhofer ISE, Germany	AF1-MoM2-3 Enhanced Cation Control in ALD of Alkali Metal Containing Films by Avoiding Water-Reservoir Effects, Henrik H. Sønsteby , University of Oslo, Norway
11:30am	AA-MoM2-4 Atomic Layer Deposition of Aluminium Doped Zn _{1-x} Mg _x O as Transparent Conducting Films for Photovoltaics, Poorani Gnanasambandan , <i>N. Adjeroud, R. Leturcq</i> , Luxembourg Institute of Science and Technology (LIST), Luxembourg	AF1-MoM2-4 Atomic Layer Deposition of Lead Halides: PbBr ₂ and PbCl ₂ , Georgi Popov , <i>C. Van Dijck, L. Junkers</i> , University of Helsinki, Finland; <i>G. Bačić</i> , Carleton University, Canada; <i>A. Weiss, M. Mattinen, A. Vihervaara, P. Jalkanen, K. Mizohata, J. Räisänen, M. Kemell, M. Leskelä</i> , University of Helsinki, Finland; <i>S. Barry</i> , Carleton University, Canada; <i>M. Ritala</i> , University of Helsinki, Finland
11:45am	AA-MoM2-5 An in-Situ Infrared Spectroscopy Study on the Influence of ALD SnO ₂ on Formamidinium-Based Metal Halide Perovskite, A.E.A. (Andrea) Bracesco , <i>J. Jansen, W. Kessels</i> , Eindhoven University of Technology, Netherlands; <i>V. Zardetto</i> , Solliance Solar Research, Netherlands; <i>M. Creatore</i> , Eindhoven University of Technology, Netherlands	AF1-MoM2-5 Carbene Based Precursors for the ALD of Coinage Metals, Nils Boysen , Ruhr University Bochum, Germany; <i>A. Philip</i> , Aalto University, Finland; <i>D. Rogalla</i> , Ruhr University Bochum, Germany; <i>M. Karppinen</i> , Aalto University, Finland; <i>A. Devi</i> , Ruhr University Bochum, Germany
12:00pm		AF1-MoM2-6 Low Temperature ALD of Metals and Nitrides Using Thermally Generated Radical Precursors, Goran Bacic , Carleton University, Canada; <i>C. Dezelah</i> , ASM Microchemistry Ltd., Finland; <i>S. Barry</i> , Carleton University, Canada

Monday Morning, June 27, 2022

	ALD Fundamentals Room Van Eyck - Session AF2-MoM2 High Aspect Ratio/High Surface Area/Powder ALD Moderators: Jolien Dendooven, Ghent University, Belgium, Juhani Taskinen, Picosun Oy, Finland	Atomic Layer Etching Room Baekeland - Session ALE-MoM2 Thermal and/or Isotropic ALE I Moderators: Steven M. George, University of Colorado at Boulder, Anil Mane, Argonne National Laboratory
10:45am	AF2-MoM2-1 Influence of the High Aspect Ratio Geometry to ALD Thin Film Growth, Olli Ylivaara , VTT Technical Research Centre of Finland; <i>M. Utriainen, P. Hyttinen</i> , Chipmetrics Oy, Finland; <i>R. Puurunen</i> , Aalto University Aalto School of Chemical Engineering, Finland	INVITED: ALE-MoM2-1 Photon-Activated Metal ALE, <i>X. Yang, B. Coffey, John Ekerdt</i> , University of Texas at Austin
11:00am	AF2-MoM2-2 Ultra-Low Temperature ALD of Pure Antimony for Grain Boundary Engineering of Thermoelectric Materials, Amin Bahrami , <i>S. He, R. He, S. Lehmann, K. Nielsch</i> , Leibniz-Institut für Festkörper- und Werkstoffforschung Dresden e. V., Germany	
11:15am	AF2-MoM2-3 Infilling Macroscopic Nanoparticle Networks via ALD, Benjamin Greenberg , <i>K. Anderson, A. Jacobs, J. Wollmershauser, B. Feigelson</i> , U.S. Naval Research Laboratory	ALE-MoM2-3 Plasma-Assisted Thermal-Cyclic Etching of Silicon Germanium Selective to Germanium, Kazunori Shinoda , Hitachi, Japan; <i>H. Hamamura</i> , Hitachi, Japan; <i>K. Maeda, M. Izawa</i> , Hitachi High-Tech, Japan; <i>T. Nguyen, K. Ishikawa, M. Hori</i> , Nagoya University, Japan
11:30am	AF2-MoM2-4 Zinc Acetylacetonate on Mesoporous Supports by Atomic Layer Deposition, Jihong Yim , <i>E. Haimi</i> , Aalto University, Finland; <i>M. Mäntymäki</i> , University of Helsinki, Finland; <i>V. Kärkäs</i> , Aalto University, Finland; <i>R. Bes</i> , University of Helsinki, Finland; <i>A. Arandia, J. Velasco, T. Viinikainen</i> , Aalto University, Finland; <i>S. Huotari</i> , University of Helsinki, Finland; <i>R. Karinen</i> , Aalto University, Finland; <i>M. Putkonen</i> , University of Helsinki, Finland; <i>R. Puurunen</i> , Aalto University, Finland	ALE-MoM2-4 Thermal Atomic Layer Etching of Cobalt with Chlorine Plasma and Hexafluoroacetylacetone (Hhfac), Yongjae Kim , <i>H. Ha, H. Chae</i> , Sungkyunkwan University (SKKU), Korea (Republic of)
11:45am	AF2-MoM2-5 Synthesis of High Surface Area Metal Oxide Catalyst Supports, Robert Baumgarten , <i>P. Ingale, K. Knemeyer, R. Naumann d'Alnoncourt, M. Driess</i> , BasCat – UniCat BASF JointLab, Technische Universität Berlin, Germany; <i>F. Rosowski</i> , BASF SE, Process Research and Chemical Engineering, Germany	INVITED: ALE-MoM2-5 Thermal-Cyclic Atomic Layer Etching of Cobalt by Plasma Oxidation and Organometallization, Sumiko Fujisaki , Hitachi Ltd., R&D group, Japan; <i>Y. Yamaguchi</i> , Hitachi, Ltd., R&D group, Japan; <i>H. Kobayashi</i> , Hitachi High-Tech, Japan; <i>K. Shinoda, M. Yamada, H. Hamamura</i> , Hitachi, Ltd., R&D group, Japan; <i>K. Kawamura, M. Izawa</i> , Hitachi High-Tech, Japan
12:00pm	AF2-MoM2-6 ALD on Porous Substrates: From General Formulation to Fibrous Substrates and Scaling Laws, Wojciech Szmyt , <i>C. Guerra-Nuñez</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <i>L. Huber</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; <i>C. Dransfeld</i> , TU Delft, Netherlands; <i>I. Utke</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland	

Monday Afternoon, June 27, 2022

Room Auditorium		
1:30pm	AF1-MoA-1 Atomic Layer Deposition of CsI and CsPbI ₃ , <i>Alexander Weiß, G. Popov, E. Atosuo, P. Jalkanen, A. Vihervaara, M. Vehkamäki</i> , University of Helsinki, Finland; <i>H. Sipilä, A. Niemela</i> , Fenno-Aurum Oy Ltd, Finland; <i>M. Ritala, M. Kemell</i> , University of Helsinki, Finland	ALD Fundamentals Session AF1-MoA New Precursors and Processes II Moderators: Romain Gaillac, Air Liquide, Mikko Ritala, University of Helsinki, Finland
1:45pm	AF1-MoA-2 Co(II) Amide, Pyrrolate, and Aminopyridinate Complexes: Assessment of Structure and Thermal Properties as ALD Precursors, <i>Jorit Obenlünenschloß, D. Zanders</i> , Ruhr University Bochum, Germany; <i>M. Land, S. Barry</i> , Carleton University, Canada; <i>A. Devi</i> , Ruhr University Bochum, Germany	
2:00pm	AF1-MoA-3 SnO Thin Films <i>via</i> Water Based ALD using a Sn(II) Precursor: Precursor Evaluation and ALD Process Development, <i>Niklas Huster</i> , Ruhr University Bochum, Germany; <i>R. Ghiyasi</i> , Aalto University, Finland; <i>D. Zanders</i> , Ruhr University Bochum, Germany; <i>D. Rogalla</i> , RUBION, Ruhr University Bochum, Germany; <i>M. Karpinen</i> , Aalto University, Finland; <i>A. Devi</i> , Ruhr University Bochum, Germany	
2:15pm	AF1-MoA-4 Tuning the Texture of ZnO Thin Films Through the Addition of a Volatile Shape-Directing Agent in the AP-SALD System, <i>C. Crivello, M. Weber</i> , LMGP Grenoble-INP / CNRS, France; <i>T. Jalabert, G. Ardila Rodriguez</i> , IMEP-LaHC UGA/CNRS/Grenoble INP, France; <i>M. Dibenedetto, David Muñoz-Rojas</i> , LMGP Grenoble-INP / CNRS, France	
2:30pm	AF1-MoA-5 Recent Advances in Rare Earth Precursors for ALD, <i>Jean-Pierre Glauber, M. Schmickler, P. Kaur, S. Beer, N. Boysen</i> , Ruhr University Bochum, Germany; <i>A. Devi</i> , Ruhr Universität Bochum, Germany	
2:45pm	AF1-MoA-6 Novel Growth Inhibitor in Atomic Layer Deposition for Conformal Coverage on High Aspect Ratio Trenches, <i>Kok Chew Tan, J. Jung, C. Yeon, S. Lee, J. Kim, J. Nam, T. Park, Y. Park</i> , Soulbrain, Korea (Republic of)	
3:00pm	AF1-MoA-7 Solution ALD: A Versatility Process for the Growth of Sulfides and Selenides, <i>Maissa Barr, B. Zhao, P. Von Grundherr</i> , Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany; <i>V. Koch</i> , Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany; <i>J. Charvot</i> , University of Pardubice: Pardubice, CZ, Czechia; <i>M. Hallik</i> , Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany; <i>F. Bureš</i> , University of Pardubice, Czechia; <i>J. Bachmann</i> , Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany	
3:15pm	AF1-MoA-8 Flash-Lamp Enabled Atomic Layer Deposition, <i>Martin Knaut, Y. Cui, R. Deltschew, M. Albert, T. Mikolajick</i> , TU Dresden, Germany	
3:30pm	Break & Exhibits	
3:45pm		
4:00pm	INVITED: AF2-MoA-11 A User Experience Feedback on Numerical Simulation for CVD/ALD Precursor Design & Development, <i>Romain Gaillac</i> , Air Liquide	ALD Fundamentals Session AF2-MoA Simulation, Modeling, and Theory of ALD I Moderators: Hannah Margavio, North Carolina State University, Bonggeun Shong, Hongik University, Korea (Republic of)
4:15pm		
4:30pm	AF2-MoA-13 From Monolayers to Crystalline Materials in ALD: Simulation and Comparison With Experiments, <i>Angel Yanguas-Gil, J. Elam</i> , Argonne National Laboratory	
4:45pm	AF2-MoA-14 What Is the Reactivity of a Precursor in ALD? - Simulation of Growth and Etch Rates, <i>Simon D. Elliott, A. Chew, Y. An</i> , Schrödinger, Inc.	
5:00pm	AF2-MoA-15 Random Sequential Adsorption and the Consequences for the Growth-Per-Cycle of Atomic Layer Deposition Processes, <i>Ilker Tezsevin, S. Deijkers, M. Merks, E. Kessels, A. Mackus</i> , Eindhoven University of Technology, The Netherlands	
5:15pm	AF2-MoA-16 Machine Learning Based Atomistic Modeling of ALD Processes, <i>J. Schneider, Suresh Kondati Natarajan, V. Arcisauskaitė, U. Martinez</i> , Synopsys Denmark; <i>A. Blom</i> , Synopsys Inc.	
5:30pm	AF2-MoA-17 Modelling Ruthenium Deposition in Atomic Layer Deposition of Ru-doped TaN, <i>Rita Mullins, M. Nolan</i> , Tyndall National Institute, Ireland	

Monday Afternoon, June 27, 2022

Room Van Eyck	
1:30pm	INVITED: AF3-MoA-1 Revisited Thermal and Plasma Enhanced Atomic Layer Deposition Processes of Metal Nitrides, <i>Elisabeth Blanquet</i> , SIMaP, CNRS, University Grenoble Alpes, France; <i>A. Mantoux</i> , SIMaP, University Grenoble Alpes, France; <i>F. Mercier</i> , SIMaP, CNRS, University Grenoble Alpes, France; <i>R. Boichot</i> , SIMAP, Grenoble-INP, University Grenoble Alpes, France; <i>I. Nuta</i> , SIMAP, CNRS, University Grenoble Alpes, France; <i>C. Jimenez</i> , LMGP, CNRS, University Grenoble Alpes, France
1:45pm	
2:00pm	AF3-MoA-3 Plasma-Enhanced Low-Temperature ALD Process for Molybdenum Oxide Thin Films and Its Evaluation as Hydrogen Gas Sensors, <i>Jan-Lucas Wree</i> , J. Klimars, Ruhr University Bochum, Germany; <i>N. Saliha</i> , Heinrich-Heine University Düsseldorf, Germany; <i>D. Rogalla</i> , Ruhr University Bochum, Germany; <i>K. Schierbaum</i> , Heinrich-Heine University Düsseldorf, Germany; <i>A. Devi</i> , Ruhr University Bochum, Germany
2:15pm	AF3-MoA-4 Low-Temperature Plasma-Enhanced Atomic Layer Deposition of Crystalline Tin Disulfide Thin Films, <i>Femi Mathew</i> , <i>N. Poonkottil</i> , <i>R. Karuparambil Ramachandran</i> , <i>B. Zhao</i> , <i>Z. Hens</i> , <i>C. Detavernier</i> , <i>J. Dendooven</i> , Ghent University, Belgium
2:30pm	AF3-MoA-5 Leveraging Non-Saturated Oxidation Conditions in Plasma-Enhanced Atomic Layer Deposition for Tuning Functional Properties of CoO _x Catalyst Layers, <i>Matthias Kuhl</i> , <i>A. Henning</i> , <i>L. Haller</i> , <i>L. Wagner</i> , <i>C. Jiang</i> , <i>V. Streibel</i> , <i>I. Sharp</i> , <i>J. Eichhorn</i> , Technical University Munich, Germany
2:45pm	AF3-MoA-6 Low-temperature HfO ₂ /SiO ₂ Gate Stacked Film Grown by Neutral Beam Enhanced Atomic Layer Deposition, <i>Daisuke Ohori</i> , Tohoku University, Japan; <i>B. Ge</i> , Tohoku University, China; <i>Y. Chen</i> , National Yang Ming Chiao Tung University, Taiwan; <i>T. Ozaki</i> , Tohoku University, Japan; <i>K. Endo</i> , National Institute of Advanced Industrial Science and Technology, Japan; <i>Y. Li</i> , <i>J. Tarnag</i> , National Yang Ming Chiao Tung University, Taiwan; <i>S. Samukawa</i> , Tohoku University, Japan
3:00pm	AF3-MoA-7 Effect of O ₂ Plasma Exposure Time During Atomic Layer Deposition of Amorphous Gallium Oxide, <i>Florian Maudet</i> , Helmholtz Zentrum Berlin, Germany; <i>H. Kröncke</i> , <i>S. Banerjee</i> , <i>K. Nair</i> , <i>C. Van Dijk</i> , Helmholtz-Zentrum Berlin, Germany; <i>S. Wiesner</i> , <i>J. Albert</i> , <i>V. Deshpande</i> , Helmholtz Zentrum Berlin, Germany; <i>C. Dubourdieu</i> , Helmholtz-Zentrum Berlin, Germany
3:15pm	
3:30pm	Break & Exhibits
3:45pm	
4:00pm	
4:15pm	AF4-MoA-12 Thickness Matters: Sintering Inhibition of Pt Nanoparticle Catalysts via Sequential Control of MgO Overcoats, <i>Zhiwei Zhang</i> , <i>M. Filez</i> , <i>M. Minjauw</i> , <i>J. Li</i> , <i>C. Detavernier</i> , <i>J. Dendooven</i> , Ghent University, Belgium
4:30pm	AF4-MoA-13 Route to Low Temperature Area-Selective Atomic Layer Deposition of Ni, <i>Himamshu Nallan</i> , <i>X. Yang</i> , <i>J. Ekerdt</i> , The University of Texas at Austin
4:45pm	AF4-MoA-14 Hydrogen Plasma-Assisted Atomic Layer Deposition of sub-Nanometer AlO _x for Low-Impedance Contacts to GaN, <i>Maximilian Christis</i> , <i>A. Henning</i> , Walter Schottky Institute and Physics Department, Technical University of Munich, Germany; <i>J. Bartl</i> , Walter Schottky Institute, Physics Department, and WACKER-Chair for Macromolecular Chemistry, Department of Chemistry, Technical University of Munich, Germany; <i>A. Zeidler</i> , Walter Schottky Institute and Physics Department, Technical University of Munich, Germany; <i>B. Rieger</i> , Department of Chemistry, WACKER-Chair for Macromolecular Chemistry, Technical University of Munich, Germany; <i>M. Stutzmann</i> , <i>I. Sharp</i> , Walter Schottky Institute and Physics Department, Technical University of Munich, Germany
5:00pm	AF4-MoA-15 Tunable Ti ³⁺ -Mediated Charge Carrier Dynamics of Atomic Layer Deposition Grown Amorphous TiO ₂ , <i>Jesse Saari</i> , <i>H. Ali-Löytty</i> , Surface Science Group, Tampere University, Finland; <i>M. Kauppinen</i> , Competence Centre for Catalysis and Department of Physics, Chalmers University of Technology, Sweden; <i>M. Hannula</i> , Surface Science Group, Tampere University, Finland; <i>R. Khan</i> , Photonic Compounds and Nanomaterials group, Tampere University, Finland; <i>K. Lahtonen</i> , Faculty of Engineering and Natural Sciences, Tampere University, Finland; <i>L. Palmolahti</i> , Surface Science Group, Tampere University, Finland; <i>A. Tukiainen</i> , Faculty of Engineering and Natural Sciences, Tampere University, Finland; <i>H. Grönbeck</i> , Competence Centre for Catalysis and Department of Physics, Chalmers University of Technology, Sweden; <i>N. Tkachenko</i> , Photonic Compounds and Nanomaterials group, Tampere University, Finland; <i>M. Valden</i> , Surface Science Group, Tampere University, Finland
5:15pm	AF4-MoA-16 Temperature-Time-Thickness (Tt) Topography Maps: A Parameter Space Visualization Approach for ALD Processes, <i>Parag Banerjee</i> , <i>N. Berriel</i> , <i>U. Kumar</i> , <i>C. Feit</i> , University of Central Florida; <i>A. Arunachalam</i> , University of Texas at Dallas; <i>K. Basu</i> , University of Texas at Dallas, USA; <i>S. Seal</i> , University of Central Florida
5:30pm	AF4-MoA-17 <i>in situ</i> TEM Study to Unravel Dynamic Processes during the Synthesis of Ultrathin Crystalline ALD Nanotubes, <i>Lilian Vogl</i> , <i>P. Schweizer</i> , <i>L. Pethö</i> , <i>A. Sharma</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; <i>E. Spiecker</i> , Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany; <i>J. Michler</i> , <i>I. Utke</i> , Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland
	ALD Fundamentals Session AF3-MoA Plasma Enhanced ALD Moderators: Sumit Agarwal, Colorado School of Mines, Andreas Werbrouck, Ghent University, Belgium
	ALD Fundamentals Session AF4-MoA Surface Science Moderators: Annelies Delabie, IMEC, Belgium, Virginia Wheeler, U.S. Naval Research Laboratory

Monday Afternoon, June 27, 2022

Room Van Rysselberghe		
1:30pm	AA1-MoA-1 ALD Preparation of TiO ₂ -MnO _x /SiO ₂ Catalyst for Selective Catalytic Reduction of Nitrogen Oxides, <i>Saeed Saedy</i> , Delft University of Technology, Netherlands; <i>D. Kazimierz</i> , Paul Scherrer Institut, Switzerland; <i>D. Urbanas</i> , Vilnius Gediminas Technical University, Lithuania; <i>D. Ferri</i> , Paul Scherrer Institut, Switzerland; <i>J. van Ommen</i> , Delft University of Technology, Netherlands	ALD Applications Session AA1-MoA ALD for Catalysis Moderator: Ashley R. Bielinski, Argonne National Laboratory
1:45pm	AA1-MoA-2 Unravelling the Mechanism of Electrochemical Activation of ALD Cobalt Phosphate by Digital Control Over Its Chemical Composition, <i>G. van Straaten</i> , <i>R. Zhang</i> , <i>E. Kessels</i> , Eindhoven University of Technology, The Netherlands; <i>R. van de Sanden</i> , <i>M. Tsampas</i> , Dutch Institute for Fundamental Energy Research, Netherlands; <i>Mariadriana Creatore</i> , Eindhoven University of Technology, The Netherlands	
2:00pm	AA1-MoA-3 Increasing ALD Complexity: How to Transform Ternary Oxide Films Into Tunable Bimetallic Thin Films and Nanoparticles, <i>J. Feng</i> , <i>Matthias Filez</i> , <i>M. Minjauw</i> , <i>E. Salano</i> , <i>C. Detavernier</i> , <i>J. Dendooven</i> , Ghent University, Belgium	
2:15pm	AA1-MoA-4 Tunable TiO ₂ -BN-Pd Nanofibers by Combining Electrospinning and Atomic Layer Deposition to Enhance Photodegradation of Acetaminophen, <i>Syreina Alsayegh</i> , Institut Européen des Membranes, France; <i>M. Bechelany</i> , Institut Européen des Membranes, France; <i>F. TANOS</i> , Institut Européen des membranes, France; <i>A. NADA</i> , <i>G. LESAGE</i> , <i>F. Zaviska</i> , Institut Européen des Membranes, France; <i>M. Weber</i> , Laboratoire des Matériaux et du Génie Physique LMGP, France	
2:30pm	AA1-MoA-5 Ultra-Low Dimensional Ir-Ru Thin-Film by Atomic Layer Deposition on Porous Titanium Felt Substrate for Electrochemical Water Splitting Application, <i>Rahul Ramesh</i> , <i>N. Park</i> , <i>T. Cheon</i> , School of Materials Science and Engineering, Yeungnam University, Korea (Republic of); <i>M. Byeon</i> , <i>T. Hong</i> , Busan Center, Korea Basic Science Institute, Korea (Republic of); <i>S. Kim</i> , School of Materials Science and Engineering, Yeungnam University, Korea (Republic of)	
2:45pm	AA1-MoA-6 Influence of Co/Ni Ratio on OER-catalytic Performance of Atomic Layer Deposited Nickel Cobalt Oxide, <i>Renee van Limpt</i> , Eindhoven University of Technology, Netherlands; <i>M. Lavorenti</i> , <i>M. Tsampas</i> , Dutch Institute for Fundamental Energy Research, Netherlands; <i>A. Creatore</i> , Eindhoven University of Technology, Netherlands	
3:00pm	AA1-MoA-7 Fundamental Studies of s-ALD Grown Iridium Thin Films on Planar Substrates for Acidic Water Splitting, <i>J. Shen</i> , TNO-Holst Centre, Netherlands; <i>P. Shirvanian</i> , TNO-STIP, Netherlands; <i>E. Balder</i> , TNO-Holst Centre, Netherlands; <i>B. van Dijk</i> , TNO-STIP, Netherlands; <i>N. Huijssen</i> , <i>A. Bronneberg</i> , <i>P. Poadt</i> , <i>Mahmoud Ameen</i> , TNO-Holst Centre, Netherlands	
3:15pm	AA1-MoA-8 Functionalization of MoS ₂ With Noble Metal by Atomic Layer Deposition for Hydrogen Evolution Reaction, <i>JungYub Lee</i> , <i>J. Kim</i> , <i>I. Sohn</i> , <i>S. Chung</i> , <i>H. Kim</i> , School of Electrical and Electronic Engineering, Yonsei University, Korea (Republic of)	
3:30pm	Break & Exhibits	
3:45pm		
4:00pm	AA2-MoA-11 Conversion Reactions and Redox Changes on the Surface of Lithium-Ion Battery Cathode Materials during Chemical Vapor Treatment for ALD, <i>P. Darapaneni</i> , <i>A. Mane</i> , <i>Z. Hood</i> , <i>Jeffrey Elam</i> , Argonne National Laboratory	ALD Applications Session AA2-MoA ALD for Energy Storage Moderators: Ageeth Bol, University of Michigan, Ann Arbor, Philippe Vereecken, IMEC, Belgium
4:15pm	AA2-MoA-12 Titanium Carboxylate MLD Hybrid Films as Protective Coatings for Lithium-Ion Batteries, <i>Sofie S. T. Vandembroucke</i> , <i>L. Henderick</i> , Ghent University, Belgium; <i>L. De Taeye</i> , IMEC, Belgium; <i>J. Li</i> , Ghent University, Belgium; <i>K. Jans</i> , <i>P. Vereecken</i> , IMEC, Belgium; <i>J. Dendooven</i> , <i>C. Detavernier</i> , Ghent University, Belgium	
4:30pm	AA2-MoA-13 Surface Coating and Grain Boundary Engineering of NMC811 Materials for Next-Generation Li-Ion Batteries, <i>Zahra Ahaliabadeh</i> , <i>V. Miikkulainen</i> , Aalto University, Finland; <i>M. Mäntymäki</i> , University of Helsinki, Finland; <i>T. Kallio</i> , Aalto University, Finland	
4:45pm	AA2-MoA-14 Hybrid Inorganic/Organic Polycarbonate Track-Etched Membranes With Tunable Pore Size and Surface Functionality for Redox Flow Batteries, <i>Rajesh Pathak</i> , Applied Materials Division, Argonne National Laboratory; <i>X. Fang</i> , Indiana University-Purdue University Indianapolis; <i>R. Shevate</i> , <i>V. Rozyyev</i> , <i>A. Mane</i> , Applied Materials Division, Argonne National Laboratory; <i>X. Wei</i> , Indiana University-Purdue University Indianapolis; <i>Z. Xia</i> , Argonne Center for Molecular Engineering, Argonne National Laboratory; <i>L. Zhang</i> , Chemical Science and Engineering Division, Argonne National Laboratory; <i>S. Babinec</i> , Argonne Collaborative Center for Energy Storage Science (ACCESS), Argonne National Laboratory; <i>S. Darling</i> , Argonne Center for Molecular Engineering, Argonne National Laboratory; <i>J. Elam</i> , Applied Materials Division, Argonne National Laboratory	
5:00pm	AA2-MoA-15 TiO ₂ ALD Thin Films Characterization for SiC Capacitor, <i>R. César</i> , <i>José Diniz</i> , University of Campinas - UNICAMP, Brazil	
5:15pm	AA2-MoA-16 ALD Can Enable Competitive, U.S.-Sourced Graphite Production, <i>Arrelaine Dameron</i> , <i>D. Higgs</i> , <i>B. Hughes</i> , Forge Nano	
5:30pm	AA2-MoA-17 Plasma-Enhanced Atomic Layer Deposition of Nickel and Cobalt Phosphate for Lithium Ion Batteries, <i>Lowie Henderick</i> , <i>R. Blomme</i> , <i>J. Keukelier</i> , <i>M. Minjauw</i> , Ghent University, Belgium; <i>J. Meersschaut</i> , IMEC, Belgium; <i>J. Dendooven</i> , Ghent University, Belgium; <i>P. Vereecken</i> , IMEC, Belgium; <i>C. Detavernier</i> , Ghent University, Belgium	

ALD Fundamentals

Room Arteveldeforum & Pedro de Gante - Session AF-MoP

ALD Fundamentals Poster Session

5:45pm

AF-MoP-1 Unearthing Ruthenium Diazadienyls as Precursors for the ALD of Ru Thin Films: Precursor Assessment and ALD Process Development, *David Zanders*, J. Obenlueschloss, Ruhr University Bochum, Germany; *M. Gock*, Heraeus, Germany; *A. Devi*, Ruhr University Bochum, Germany

AF-MoP-2 Towards Greener ALD Processes: The Precursor Chemistry Is Key, *Matthieu Weber*, LMGP - Grenoble INP, France; *O. Granier*, *D. Muñoz-Rojas*, LMGP - Grenoble INP, France; *N. Boysen*, *A. Devi*, Ruhr Universität Bochum, Germany

AF-MoP-3 An IR Spectroscopy Study of the Degradation of Surface Bound Azido-Groups in High Vacuum, *Sofie S. T. Vandenbroucke*, *M. Nisula*, *R. Petit*, Ghent University, Belgium; *R. Vos*, *K. Jans*, *P. Vereecken*, IMEC, Belgium; *J. Dendooven*, *C. Detavernier*, Ghent University, Belgium

AF-MoP-4 Nucleation of AlOx on ZrOx and ZrOx on AlOx studied by Low Energy Ion Scattering, *Jan Träger*, Tascon GmbH, Germany; *M. Näsi*, *T. Blomberg*, Picosun Oy, Finland; *R. ter Veen*, Tascon GmbH, Germany

AF-MoP-5 Characteristics Evaluation of SiO₂ Thin Film Deposited by Organic vs Inorganic Precursor in ALD, *Jihyeok An*, *I. Yang*, *S. Yoon*, DUKSAN Techopia Co., Ltd, Korea (Republic of); *I. Park*, Hanyang University, Korea

AF-MoP-6 Microstructure and Electrical Properties of Conductive Nitride Films Grown by Plasma Enhanced Atomic Layer Deposition with Considerable Ion Bombardment, *I. Krylov*, Tower Semiconductor Ltd., Israel; *Valentina Korchnoy*, *X. Xu*, *K. Weinfeld*, *E. Yalon*, *D. Ritter*, *M. Eizenberg*, Technion - Israel Institute of Technology, Israel

AF-MoP-7 Room-Temperature Atomic Layer Deposition of Iron Oxide and Its Surface Reaction; Explained by *in-Situ* Observation, *K. Yoshida*, *I. Nagata*, *K. Saito*, *M. Miura*, *K. Kanomata*, *Fumihiko Hirose*, Yamagata University, Japan

AF-MoP-8 Simulation of Conformality of ALD Growth Inside Lateral Channels: Comparison between a Diffusion-Reaction Model and a Ballistic Model, *J. Velasco*, *J. Järvilehto*, *J. Yim*, *E. Verkama*, *Riikka Puurunen*, Aalto University, Finland

AF-MoP-9 Chemisorption of Aminosilane Precursors on OH-terminated SiO₂ Surfaces during ALD of SiO₂, *Heeju Son*, *k. Khumaini*, *H. Roh*, *H. Kim*, *W. Lee*, Sejong University, Korea (Republic of)

AF-MoP-10 Volatile Adducts of Cobalt and Nickel Halides, *Timo Hatanpää*, *A. Vihervaara*, *M. Ritala*, University of Helsinki, Finland

AF-MoP-11 Fabrication of Aluminum Nitride with 160 °C Atomic Layer Deposition using Plasma Excited Ammonia, *Kentaro Saito*, *K. Yoshida*, *M. Miura*, *K. Kanomata*, *B. Ahmad*, *S. Kubota*, *F. Hirose*, Yamagata University, Japan

AF-MoP-12 On the Underestimation of the Low-Temperature Limit for ALD of MoO_x from Mo(CO)₆ Precursor, *Kees van der Zouw*, *T. Aarnink*, *A. Kovalgin*, University of Twente, Netherlands

AF-MoP-13 ZnO_{1-x}S_x Layer Growth and Composition by Thermal and Plasma ALD, *Stefanie Spiering*, *D. Bagrowski*, *T. Magorian Friedlmeier*, *W. Hempel*, *T. Wohnhaas*, *J. Becker*, Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW), Germany

AF-MoP-14 Effect of Precursors on Properties of Atomic Layer Deposited Cr-Ti-O Thin Films, *Mahtab Salari Mehr*, University of Tartu, Institute of Physics, Estonia; *L. Aarik*, University of Tartu, Institute of Physics, Estonia; *T. Jõgiaas*, *A. Tarre*, *H. Mändar*, University of Tartu, Institute of Physics, Estonia

AF-MoP-15 Ligand Exchange with a Novel Cyclic Alkyl Amido Plumblylene and Transition Metal Complexes, *Kieran Lawford*, *G. Bačić*, Carleton University, Canada; *J. Masuda*, St. Mary's University, Canada; *S. Barry*, Carleton University, Canada

AF-MoP-16 Diaminosilane Precursors for the Atomic Layer Deposition of Iron Metal, *Molly Alderman*, *S. Barry*, Carleton University, Canada

AF-MoP-17 Low-temperature Epitaxy of β-Ga₂O₃ Films via Hollow-cathode Plasma-assisted ALD, *Saidjafarzoda Ilhom*, *A. Mohammad*, *D. Shukla*, *B. Willis*, University of Connecticut; *A. Okyay*, Stanford University; *N. Bjiyikli*, University of Connecticut

AF-MoP-18 Higher Effective Dielectric Constant of Hafnium Oxide When Grown with Hydrogen Peroxide Compared to Water Vapor, *Jeffrey Spiegelman*, RASIRC; *H. Kashyap*, *A. Kummel*, University of California at San Diego

AF-MoP-19 Atomic Layer Deposition of Low-resistivity Molybdenum Nitride Using F-free Mo Precursors and NH₃ Plasma, *Wangu Kang*, *J. Ahn*, *J. Han*, Seoul National University of Science and Technology, Korea (Republic of)

AF-MoP-20 Atomic Layer Deposition of Molybdenum Carbides for Advanced Metallization: The Influences of Mo Precursor and Post-Deposition Annealing, *Ji Sang Ahn*, *W. Kang*, *J. Han*, Seoul National University of Science and Technology, Korea (Republic of)

AF-MoP-21 ALD of Niobium Oxide (Nb₂O₅) and Niobium-Doped Titanium Oxide (Nb:TiO₂) for Solar Cell Applications, *Thomas Vincent*, *D. Coutancier*, *P. Dally*, IPVF (Institut Photovoltaïque d'Île-de-France), France; *M. Bouttemy*, *M. Frégnaux*, ILV (Institut Lavoisier de Versailles) - IPVF (Institut Photovoltaïque d'Île-de-France), France; *N. Schneider*, CNRS-IPVF, France

AF-MoP-22 Understanding the Grown Mechanism of Al₂O₃ Thin Films Using Plasma-Activated Deionized Water as Oxygen Source on Thermal ALD, *William Chiappim*, Aeronautical Institute of Technology, Brazil; *J. Chaves*, Aeronautical Institute of Technology, Brazil; *B. Botan Neto*, *L. Gonçalves de Lima*, *M. Shiotani Marcondes*, *N. Galvão*, *A. da Silva Sobrinho*, *R. Sávio Pessoa*, Aeronautical Institute of Technology, Brazil

AF-MoP-23 Atomic Layer Deposition of Titanium Phosphate onto Reinforcing Fibers Using Titanium Chloride, Water, and Tris-(Trimethylsilyl)-Phosphate as Precursor, *Pauline Dill*, *X. Ren*, *H. Hintersatz*, University of Technology Chemnitz, Germany; *M. Franz*, Fraunhofer Institute of Electronic Nano Systems ENAS, Germany; *D. Dentel*, *C. Teegenkamp*, *S. Ebert*, University of Technology Chemnitz, Germany

AF-MoP-24 Amorphous Carbon(a-C) Atomic Layer Deposition using CBr₄ Precursor, *Tae Hyun Kim*, *M. Kim*, *S. Park*, *S. Chung*, *H. Kim*, Yonsei University, Korea

AF-MoP-25 Al₂O₃ Nanowire Growth on WSe₂ Flake by Using Low-temperature ALD, *Chi-Chung Kei*, *C. Su*, *B. Liu*, Taiwan Instrument Technology Institute, National Applied Research Laboratories, Taiwan; *Y. Su*, Department of Electrophysics, National Yang Ming Chiao Tung University, Taiwan; *T. Lee*, *C. Cheng*, *H. Wang*, *I. Radu*, Corporate Research, TSMC, Taiwan; *W. Chang*, Department of Electrophysics, National Yang Ming Chiao Tung University, Taiwan

AF-MoP-26 Comparison of Atomic Layer Deposited ZrO₂ Thin Film using Cp-based Zr Precursor and Newly Synthesized Cp-based Zr Precursor, *Hyemi Han*, *S. Park*, *S. Na*, *S. Chung*, *H. Kim*, Yonsei University, Korea (Republic of)

AF-MoP-27 Thermal Atomic Layer Deposition of In₂O₃ Thin Films Using a Homoleptic Indium Triazenide Precursor and Water, *Pamburayi Mpofu*, Linköping University, Sweden

AF-MoP-28 Nanoindentation of Amorphous Aluminium and Tantalum Oxide Nanolaminates, *Helle-Mai Piirsoo*, *T. Jõgiaas*, *P. Ritslaid*, *K. Kukli*, *A. Tamm*, University of Tartu, Institute of Physics, Estonia

AF-MoP-29 Experimental and ReaxFF MD Studies for Boron Nitride ALD Growth from BCl₃ and NH₃ Precursors, *Naoya Uene*, *T. Mabuchi*, Tohoku University, Japan; *M. Zaito*, Japan Advanced Chemicals Ltd., Japan; *Y. Jin*, Japan Advanced Chemicals Ltd., Japan, China; *S. Yasuhara*, Japan Advanced Chemicals Ltd., Japan; *A. van Duin*, Pennsylvania State University, USA; *T. Tokumasu*, Tohoku University, Japan

AF-MoP-30 Enhancement of Graphene-Related and Substrate-Related Raman Modes Through Dielectric Layer Deposition, *Karolina Pietak*, Warsaw University of Technology Faculty of Chemistry, Poland; *J. Jagiełło*, *A. Dobrowolski*, University of Warsaw Faculty of Physics, Poland; *R. Budzich*, Warsaw University of Technology Faculty of Chemistry, Poland; *A. Wyszomolek*, University of Warsaw Faculty of Physics, Poland; *T. Ciuk*, Łukasiewicz Research Network - Institute of Microelectronics and Photonics, Poland

AF-MoP-31 Interface Modification of Thermoelectric Materials with Oxide Compounds by Atomic Layer Deposition, *Shiyang He*, *A. Bahrami*, *K. Nielsch*, Leibniz-Institut für Festkörper- und Werkstoffforschung Dresden e.V., Germany

AF-MoP-32 Comparative Study of the Growth Characteristics and Electrical Properties for Atomic Layer Deposited HfO₂ Films Using Cp-Based Hf Precursors, *Seunggyu Na*, *S. Park*, *H. Yoon*, Yonsei University, Korea; *Y. Lee*, Stanford University; *S. Chung*, *H. Kim*, Yonsei University, Korea

AF-MoP-33 Role of Ligand Coordination Sphere on the Physico-Chemical Properties of New Mn Precursors: Structural, Thermal and DFT Investigations, *Martin Wilken*, Ruhr-Universität Bochum, Germany; *A. Muriqi*, *M. Nolan*, Tyndall National Institute, University College Cork, Ireland; *A. Devi*, Ruhr Universität Bochum, Germany

AF-MoP-34 Surface Reactions During Nitrogen-Based Plasma Irradiation in Plasma-Enhanced Atomic Layer Deposition (PE-ALD) of Silicon Nitride, **Abdullah Y. Jaber**, Center for Atomic and Molecular Technologies - Osaka University, Japan; **M. Isobe**, **T. Ito**, **K. Karahashi**, **S. Hamaguchi**, Center for Atomic and Molecular Technologies, Osaka University, Japan

AF-MoP-35 Effects of Oxidant and Substrate on Film Properties and Interlayer Formation of Atomic Layer Deposited ZrO₂ Films, **Seonyeong Park**, **S. Na**, Yonsei University, Korea; **Y. Lee**, Stanford University; **S. Chung**, **H. Kim**, Yonsei University, Korea

AF-MoP-36 Zinc Precursor Development for Future ALD Film Applications, **Atsushi Sakurai**, **M. Hatase**, **M. Enzu**, **A. Yamashita**, **Y. Ooe**, **K. Takeda**, **R. Fukushima**, ADEKA CORPORATION, Japan

AF-MoP-37 Conformal Deposition of B_xC Thin Films from Triethylboron, **Arun Haridas Choolakkal**, **H. Högberg**, **J. Birch**, **H. Pedersen**, Linköping University, Sweden

AF-MoP-38 Effect of Insulator-to-Metal Transition (Imt) in Vo₂ Deposited by ALD, **Aline Jolivet**, **J. Cardin**, **C. Frilay**, CIMAP Normandie Université, ENSICAEN, UNICAEN, CEA, CNRS, France; **O. Debieu**, CIRIMAT-INPT, France; **P. Marie**, **S. Duprey**, **F. Lemarie**, **X. Portier**, **B. Horchalles**, CIMAP Normandie Université, ENSICAEN, UNICAEN, CEA, CNRS, France; **P. Bazin**, LCS Normandie Université, ENSICAEN, France; **J. More-Chevalier**, Institute of Physics, Czech Academy of Sciences, Czechia; **P. Fitl**, Institute of Physics, Czech Academy of Sciences, Czechia; **S. Cichoň**, **J. Lančok**, Institute of Physics, Czech Academy of Sciences, Czechia; **W. Jadwisieniczak**, School of Electrical Engineering and Computer Science, Ohio University; **D. Ingram**, Department of Physics and Astronomy, Ohio University; **C. Labbé**, CIMAP Normandie Université, ENSICAEN, UNICAEN, CEA, CNRS, France

AF-MoP-39 New ALD Processes for Y₂O₃ Using Molecularly Engineered Yttrium Formamidates, **Sebastian Beer**, **N. Boysen**, Ruhr University Bochum, Germany; **A. Muriqi**, Tyndall National Institute, University College Cork, Ireland; **D. Zanders**, Ruhr University Bochum, Germany; **M. Nolan**, Tyndall National Institute, University College Cork, Ireland; **A. Devi**, Ruhr University Bochum, Germany

AF-MoP-40 Nb/V-Doped Transparent Conductive TiO₂ Films Synthesized by ALD: Effect of Dopant Content and Growing Conditions, **Getaneh Diress Gesesse**, CIMAP ENSICAEN, France; **O. Debieu**, CIRIMAT, Université de Toulouse, CNRS, Université Toulouse, France; **A. Jolivet**, **C. Frilay**, **S. Duprey**, **X. Portier**, **C. Dufour**, **P. Marie**, **C. Labbé**, CIMAP Normandie Université, ENSICAEN, UNICAEN, CEA, CNRS, France; **M. El-Roz**, Laboratoire Catalyse et Spectrochimie, CNRS, ENSICAEN, Université de Caen, France; **J. Cardin**, CIMAP Normandie Université, ENSICAEN, UNICAEN, CEA, CNRS, France

AF-MoP-42 Atomic Layer Deposition of Tin Oxide Thin Films Using a New Liquid Precursor Bis(methylcyclopentadienyl) Tin, **Makoto Mizui**, **N. Takahashi**, **F. Mizutani**, Kojundo Chemical Laboratory Co., Ltd., Japan; **M. Inoue**, **T. Nabatame**, National Institute for Materials Science, Japan

AF-MoP-43 Growth Rate of Atomic Layer Deposition of Zinc Oxide Thin Films Using Bis(*n*-propyltetramethylcyclopentadienyl)zinc, **Fumikazu Mizutani**, **M. Mizui**, **N. Takahashi**, Kojundo Chemical Laboratory Co., Ltd., Japan; **M. Inoue**, **T. Nabatame**, National Institute for Materials Science, Japan

AF-MoP-44 Monte Carlo Simulation in a Laptop for Understanding Physical Interaction of Atomic Layer Deposition Precursors, **Bonwook Gu**, Incheon National University, Korea (Republic of); **N. Le**, **C. Nguyen**, Incheon National University, Viet Nam; **S. Yasmeen**, Incheon National University, Pakistan; **K. Youngho**, Incheon National University, Korea (Republic of); **H. Lee**, Incheon National University, Korea (Republic of)

AF-MoP-45 Atomic Layer Deposition of Tin Monosulfide Films Using a Novel Cyclic Amide Divalent Metalorganic Precursor and H₂S, **Mohd Zahid Ansari**, School of Materials Science and Engineering, Yeungnam University, Korea (Republic of); **P. Janicek**, Institute of Applied Physics and Mathematics, Faculty of Chemical Technology, University of Pardubice, Czechia; **D. Nandi**, School of Materials Science and Engineering, Yeungnam University, Korea (Republic of); **B. Shong**, Department of Chemical Engineering, Hongik University, Korea (Republic of); **S. Kim**, School of Materials Science and Engineering, Yeungnam University, Korea (Republic of)

AF-MoP-46 Density Functional Theory Study on the Selective Capping of Cobalt on Copper Interconnect, **Khabib Khumaini**, **R. Hidayat**, Sejong University, Korea (Republic of); **T. Mayangsari**, Universitas Pertamina, Indonesia; **T. Chowdhury**, **H. Kim**, Sejong University, Korea (Republic of); **S. Lee**, DNF Co. Ltd., Korea (Republic of); **W. Lee**, Sejong University, Korea (Republic of)

AF-MoP-47 A New Low Temperature PEALD Process for HfO₂ Thin Films, **Florian Preischel**, **D. Zanders**, Ruhr University Bochum, Germany; **A. Kostka**, Ruhr University Bochum, Germany; **D. Rogalla**, **A. Devi**, Ruhr University Bochum, Germany

AF-MoP-48 Density Functional Theory Study on Atomic Layer Deposition of Silicon Nitride using Chlorosilane-type Precursors, **Tanzia Chowdhury**, **R. Hidayat**, **K. Khumaini**, **H. Son**, **H. Kim**, **W. Lee**, Sejong University, Korea (Republic of)

AF-MoP-49 PE-ALD of SiO₂ and Ti-doped SiO₂ in High Aspect Ratio Structures using Low Cost Precursors, **Véronique Cremers**, **G. Rampelberg**, **A. Werbrouck**, **J. Dendooven**, **C. Detavernier**, Ghent University, Belgium

AF-MoP-50 Importance of XPS Investigations of ALD Grown 2D Materials, **Jhonatan Rodriguez Pereira**, **R. Zazpe**, **J. Macak**, University of Pardubice, Czechia

AF-MoP-51 Atomic Layer Deposition for Modification of Various 1D Nanomaterials, **Jan Macak**, **R. Zazpe**, **H. Sopha**, University of Pardubice, Czechia; **M. Rihova**, Brno University of Technology, Czechia; **L. Hromadko**, **S. Thalluri**, University of Pardubice, Czechia

AF-MoP-52 Atomic Layer Deposition of Cobalt(II) Fluoride Thin Films, **Elisa Atosuo**, **M. Mäntymäki**, **K. Mizohata**, **M. Chundak**, **M. Leskelä**, **M. Ritala**, University of Helsinki, Finland

AF-MoP-53 Mechanistic Aspects of the Indium Nitride Growth under Atomic Layer Deposition Conditions: A Multiscale Modelling Study, **Giane Damas**, IFM, Sweden; **K. Rönby**, Linköping University, IFM, Sweden; **H. Pedersen**, **L. Ojamäe**, Linköping University, Sweden

AF-MoP-54 Simple Nanoscale Thermal Techniques for the Measurement of ALD Grown Thin Films, **Thomas Pfeifer**, **S. Makarem**, **P. Hopkins**, University of Virginia, USA

AF-MoP-55 Investigation of Tris(trialkylsilyl)Phosphides in Atomic Layer Deposition, **Jaroslav Charvot**, University of Pardubice, Czechia; **M. Barr**, **J. Bachmann**, University of Erlangen-Nürnberg, Germany; **F. Bureš**, University of Pardubice, Czechia

AF-MoP-56 Plasma Enhanced Atomic Layer Deposition of Nickel Oxide from Nickelocene: Growth Characteristics and Photoelectrochemical Performance, **Shane O'Donnell**, **F. Jose**, **M. Snelgrove**, **C. McFeely**, **R. O'Connor**, Dublin City University, Ireland

AF-MoP-57 Computational Investigations of Precursor and Deposition Chemistry in ALD and AS-ALD, **Ralf Tonner-Zech**, Leipzig University, Germany

AF-MoP-58 Epitaxial-like Growth of Ga₂O₃ Films on GaN Substrate by ALD using GaCp and Combinations of H₂O and O₂ Plasma Gas and Annealing Process, **Toshihide Nabatame**, **M. Inoue**, **S. Soeya**, **T. Sawada**, **T. Onaya**, **A. Ohi**, National Institute for Materials Science, Japan; **M. Takahashi**, **K. Ito**, Osaka University, Japan; **N. Ikeda**, National Institute for Materials Science, Japan; **K. Tsukagoshi**, National Institute for Materials Science, Japan

AF-MoP-59 The Impact of Oxygen Reactants on ALD InOx films using novel dimethyl[(N¹-(tert-butyl)-N²,N²-dimethylethane-1,2-diamine)]indium precursor, **Seong-Hwan Ryu**, **T. Hong**, **S. Choi**, Hanyang University, Korea; **J. Seok**, **J. Park**, Hansol Chemical, Korea (Republic of); **J. Park**, Hanyang University, Korea

AF-MoP-60 Development of an Innovative Method to Find New Efficient Gallium ALD Precursors, **P. Pavard**, CNRS-IPVF, France; **C. Gosmini**, LCM, École Polytechnique CNRS, France; **D. Lincot**, CNRS-IPVF, France; **V. Albin**, **V. Lair**, **A. Ringuede**, Chimie ParisTech, PSL University, CNRS, France; **A. Auffrant**, LCM, École Polytechnique CNRS, France; **Nathanaele Schneider**, CNRS-IPVF, France

AF-MoP-61 Detailed Characterization of Bis(triisopropylcyclopentadienyl)strontium(Sr(iPr₃Cp)₂) for the Understanding of SrTiO₃ Atomic Layer Deposition, **Young Jae Park**, Samsung Advanced Institute of Technology, Korea (Republic of); **J. Park**, Korea Research Institute of Standards and Science, Korea (Republic of); **J. Han**, **J. Lim**, **B. Choi**, Samsung Advanced Institute of Technology, Korea (Republic of); **S. Kang**, Korea Research Institute of Standards and Science, Korea (Republic of); **C. Baik**, Samsung Advanced Institute of Technology, Korea (Republic of)

AF-MoP-62 New Potential Synthesis Route of Molybdenum Nitride Nanosheets by Nitriding Molybdenum Disulfide Deposited by Atomic Layer Deposition (ALD), **Julien Patouillard**, SIMAP, Grenoble-INP, CNRS, France

AF-MoP-63 Phase-Transformation of as-Grown Crystalline VOx Films Using Ar-Plasma Annealing During Low-Temperature Hollow-Cathode Plasma-Assisted ALD Monitored via *in-Situ* Ellipsometry, **Adnan Mohammad**, **S. Ilham**, University of Connecticut; **A. Okyay**, Stanford University; **B. Willis**, **N. Biyikli**, University of Connecticut

AF-MoP-64 ALD Process Monitoring and Optimisation by Self-Plasma OES, **Mantas Drazdys**, Center for Physical Sciences and Technology, Lithuania; **D. Astrauskyė**, Center for Physical Sciences and Technology, Lithuania; **R. Drazdys**, Center for Physical Sciences and Technology, Lithuania; **M. Audronis**, Nova Fabrica Ltd., Lithuania

AF-MoP-65 Growth of Boron Nitride by Atomic Layer Deposition Using the *in-Situ* Decomposition of Ammonium Carbamate, **Ana Álvarez-Yenes**, **M. Knez**, CIC nanoGUNE, Spain

AF-MoP-66 Modelling Atomic Layer Deposition of Noble Metals, *Sylvia Klejna*, AGH University of Science and Technology, Academic Centre for Materials and Nanotechnology, Poland

AF-MoP-67 Effect of the N-Source on the Growth and Quality of Pe-ALD Tin Thin Films, *Clémence Badie*, Aix-Marseille University, France; *M. Barr, J. Bachmann*, Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany; *T. Defforge, G. Gautier*, GREMAN, CNRS, Univ. Tours, France; *L. Santinacci*, Aix-Marseille University, France

AF-MoP-68 Silicon Nitride Grown by VHF (162 MHz) Plasma Enhanced Atomic Layer Deposition With Floating Multi-Tile Electrodes Using Di(Isopropylamino)Silane and N₂ Plasma, *You Jin Ji, H. Kim, K. Kim, J. Kang, D. Kim*, Sungkyunkwan University (SKKU), Korea (Republic of); *K. Kim*, Massachusetts Institute of Technology, Korea (Republic of); *D. Kim*, Sungkyunkwan University (SKKU), Korea (Republic of); *A. Ellingboe*, Dublin City University, Ireland; *G. Yeom*, Sungkyunkwan University (SKKU), Korea (Republic of)

AF-MoP-69 Computational Fluid Dynamics Study of ALD Processes: Benchmarking and Validation, *Gizem Ersavas Isitman, D. Izbassarov, R. L. Puurunen, V. Vuorinen*, Aalto University, Finland

AF-MoP-70 Feature-Scale Conformality of Atomic Layer Deposition from Continuum to Free Molecular Flow: How Knudsen Number Influences Thickness Profile Characteristics, *J. Velasco, Christine Gonsalves, G. Ersavas Isitman, J. Yim, E. Verkama, D. Izbassarov, V. Vuorinen, R. Puurunen*, Aalto University, Finland

AF-MoP-71 Nucleation Studies of Copper ALD on SiO₂ and Si₃N₄, *Krzysztof Mackosz*, Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland; *A. Szkudlarek*, AGH University of Science and Technology, Academic Centre for Materials and Nanotechnology, Poland; *I. Utke*, Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland

AF-MoP-72 Photocatalytic Degradation of Harmful Pollutants to Improve Indoor and Outdoor Air Quality, *Tobias Graumann, S. Pleger, C. Jacobs, C. Beyen, V. Sittinger*, Fraunhofer Institute for Surface Engineering and Thin Films IST, Germany

AF-MoP-73 High Vacuum Chemical Vapour Deposition: High Growth Rate ALD-Like Film Synthesis and Epitaxial CVD for Integrated Photonics, *Wojciech Szmyt, J. Geler-Kremer*, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; *S. Abel*, Lumiphase AG, Switzerland; *J. Fompeyrine*, Lumiphase, AG, Switzerland; *P. Hoffmann*, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland

Emerging Materials

Room Arteveldeforum & Pedro de Gante - Session EM-MoP

Emerging Materials Poster Session

5:45pm

EM-MoP-2 Calcium and Vanadium Mixed Oxides With ALD, *Fabian Krahl, K. Nielsch*, Leibniz Institute for Solid State and Materials Research Dresden, Germany

EM-MoP-3 Atomic Layer Deposition of Highly Pure Metals for Memory Devices Preparation, *Haojie Zhang, B. Kalkofen, S. Parkin*, Max Planck Institute of Microstructure Physics, Germany

EM-MoP-4 Liquid Atomic Layer Deposition of Cu₂(Bdc)₂ (Dabco) Through 3D-Printed Microfluidic Chips, *Octavio Graniel, D. Muñoz-Rojas*, University Grenoble Alpes, CNRS, Grenoble INP, LMGP, France; *J. Puigmarti-Luis*, Departament de Ciència dels Materials i Química Física, Institut de Química Teòrica i Computacional, ICREA, Catalan Institution for Research and Advanced Studies, Spain

EM-MoP-7 Atomic Layer Deposition of Yttrium Iron Garnet (YIG) for 3D Spintronics, *Michaela Lammel*, Institute for Metallic Materials, Leibniz Institute of Solid State and Materials Science, Germany; *D. Scheffler*, Institut für Festkörper- und Materialphysik, Technische Universität Dresden, Germany; *D. Pohl*, Dresden Center for Nanoanalysis (DCN), cfaed, Technische Universität Dresden, Germany; *P. Swekis*, Max-Planck Institute for Chemical Physics of Solids, Germany; *S. Reitzig*, Institut für angewandte Physik, Technische Universität Dresden, Germany; *S. Piontek*, Institute for Metallic Materials, Leibniz Institute of Solid State and Materials Science, Germany; *H. Reichlova, R. Schlitz*, Institut für Festkörper- und Materialphysik, Technische Universität Dresden, Germany; *K. Geishendorf*, Institute for Metallic Materials, Leibniz Institute of Solid State and Materials Science, Germany; *L. Siegl*, Universität Konstanz, Germany; *B. Rellinghaus*, Dresden Center for Nanoanalysis (DCN), cfaed, Technische Universität Dresden, Germany; *L. Eng*, Institut für angewandte Physik, Technische Universität Dresden, Germany; *K. Nielsch*, Institute for Metallic Materials, Leibniz Institute of Solid State and Materials Science, Germany; *S. Goennenwein*, Universität Konstanz, Germany; *A. Thomas*, Institut für Festkörper- und Materialphysik, Technische Universität Dresden, Germany

EM-MoP-13 ALD of Sulfide- and Selenide-Based Layered 2D Materials, *Samik Mukherjee, K. Nielsch*, Leibniz IFW Dresden, Germany

EM-MoP-14 Plasma Enhanced Atomic Layer Deposition of Scandium Nitride, *Thomas Larrabee, G. Rayner, Kurt J. Lesker Company; N. Strnad*, U.S. Army Research Laboratory; *N. O'Toole*, Kurt J. Lesker Company

EM-MoP-15 Yttrium Fluoride Coatings, *Carlo Waldfried*, Entegris, Inc.

Hybrid Materials & Infiltration

Room Arteveldeforum & Pedro de Gante - Session

HM+EM+NS-MoP

Hybrid Materials & Infiltration Poster Session

5:45pm

HM+EM+NS-MoP-1 Converting Electrospun Polymer Fibers Into Metal Oxide Nanofibers, Nanobelts, and Core-Shell Fibers via Sequential Infiltration Synthesis, *R. Azoulay, M. Barzily, I. Weisbord, R. Avrahami, E. Zussman*, Israel Institute of Technology, Israel; *Tamar Segal-Peretz*, Technion- Israel Institute of Technology, Israel

HM+EM+NS-MoP-2 First Principles Modelling of Growth of Hybrid Organic-Inorganic Films, *Arbresha Muriqi, M. Nolan*, Tyndall National Institute, University College Cork, Ireland

HM+EM+NS-MoP-3 Hybrid Organic-Inorganic Isoporous Membranes with Tunable Pore Sizes and Functionalities for Molecular Separation, *Z. Zhang, Helmholtz-Zentrum hereon GmbH, Germany; Assaf Simon, T. Segal-Peretz*, Technion IIT, Israel; *V. Abetz*, Helmholtz-Zentrum hereon GmbH, Germany

HM+EM+NS-MoP-4 Surface Functionalization of Porous Carbon Fibers by Vapor-Phase Methods for CO₂ Capture, *Stephan Prünfte*, Eindhoven University of Technology, Netherlands; *G. van Straaten, D. van Eyck, J. van Dijck, H. de Neve*, Carbyon, Netherlands; *M. Creatore*, Eindhoven University of Technology, Netherlands

HM+EM+NS-MoP-5 Mechanical Behavior of Hybrid Organic-Inorganic Thin Films Fabricated by Sequential Infiltration Synthesis (SIS), *Shachar Keren, T. Segal-Peretz, N. Cohen*, Technion, Israel

HM+EM+NS-MoP-6 Plasma Enhanced-MLD Processes of Phosphorus-Containing Thin Films, *Justin Lomax*, University of Western Ontario, Canada; *E. Goodwin, P. Gordon*, Carleton University, Canada; *C. McGuiness*, Solvay, Canada; *S. Barry*, Carleton University, Canada; *C. Crudden*, Queen's University, Canada; *P. Ragogna*, University of Western Ontario, Canada

HM+EM+NS-MoP-7 Al₂O₃ Dot and Antidot Arrays Fabricated by Sequential Infiltration Synthesis in Hexagonally Packed PS-*b*-PMMA Block Copolymer Thin Films, *Gabriele Seguíni, A. Motta, M. Bigatti, F. Caligiore*, CNR, Italy; *G. Rademaker, A. Gharbi, R. Tiron*, CEA/LETI-University Grenoble Alpes, France; *G. Tallarida, E. Cianci, M. Perego*, CNR, Italy

HM+EM+NS-MoP-8 Flexible and Conductive Zinc oxide – Zincone Nanolaminate Thin Films Deposited using Atomic and Molecular Layer Depositions, *Seung Hak Song, B. Choi*, Korea University, Korea (Republic of)

HM+EM+NS-MoP-9 Understanding of Polymer-Precursor Interactions during Sequential Infiltration Synthesis of Al₂O₃ in Polybutylene Succinate Films, *Alessia Motta, G. Seguíni, C. Wiemer*, IMM-CNR, Italy; *R. Consonni, A. Boccia*, SCITEC-CNR, Italy; *G. Ambrosio, C. Baratto*, INO-CNR, Italy; *P. Cerruti*, IPCB-CNR, Italy; *S. Tagliabue*, Corapack srl., Italy; *M. Perego*, IMM-CNR, Italy

HM+EM+NS-MoP-10 On the Development and Atomic Structure of ZnO Nanoparticles Grown within Polymers using Sequential Infiltration Synthesis, *Inbal Weisbord, M. Barzily*, Chemical Engineering Department, Technion, Israel; *A. Kuzmin, A. Anspoks*, Institute of Solid State Physics, University of Latvia; *T. Segal-Peretz*, Chemical Engineering Department, Technion, Israel

HM+EM+NS-MoP-11 Fabrication of Hafnium Oxide Nanostructures Using Block Copolymer Matrices via Sequential Infiltration Synthesis, *Przemyslaw Pula*, University of Warsaw, Poland

HM+EM+NS-MoP-12 ZIF-based Metal-Organic Frameworks for Cantilever Gas Sensors, *Masoud Akbari, C. Crivello, O. Graniel*, Univ. Grenoble Alpes, CNRS, Grenoble INP, LMGP, France; *M. Defort, S. Basraur*, Univ. Grenoble Alpes, CNRS, Grenoble INP, TIMA, France; *K. Musselman*, Department of Mechanical and Mechatronics Engineering, University of Waterloo, Canada; *D. Muñoz-Rojas*, Univ. Grenoble Alpes, CNRS, Grenoble INP, LMGP, France

HM+EM+NS-MoP-13 Tuning the Thermal Properties of Molecular Layer-Deposited Hybrid Metalcone Films via Modulating Metal Mass, *M. Hoque*, University of Virginia, USA; *R. Nye*, North Carolina State University; *J. Tomko*, University of Virginia, USA; *G. Parsons*, North Carolina State University; *Patrick Hopkins*, University of Virginia

HM+EM+NS-MoP-14 Analysis of Rearranged Organic/Inorganic Hybrid 2D Tincone Film via Molecular Layer Deposition, **GeonHo Baek, S. Lee, H. Kim, S. Choi, J. Park**, Hanyang University, Korea

HM+EM+NS-MoP-15 Molecular Layer Deposition (MLD) of Polyamide 6,4, **Marina Borraz Casanova**, CIC nanoGUNE, Spain

Nanostructure Synthesis and Fabrication

Room Arteveldeforum & Pedro de Gante - Session NS-MoP

Nanostructures Synthesis and Fabrication Poster Session

5:45pm

NS-MoP-1 Atmospheric Pressure ALD to Increase Organic Solvent Resistance of PDMS, **Albert Santoso, A. Damen, S. Khedoe, V. van Steijn, R. van Ommen**, Delft University of Technology, Netherlands

NS-MoP-2 The Fabrication of Heterojunctions by Atomic Layer Deposition for Gas Sensing Application, **Muhammad Hamid Raza, N. Pinna**, Humboldt-Universität zu Berlin, Germany

NS-MoP-4 Combining Initiated Chemical Vapor Deposition and Plasma-Enhanced Atomic Layer Deposition: A Study of Initial Growth and Interface Formation, **Lisanne Demelius, K. Unger, A. Coclite**, Graz University of Technology, Austria

NS-MoP-11 Synthesis of Novel Composite Thin Film Systems With Outstanding Mechanical Properties, **L. Pethö**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; **C. Guerra**, Swiss Cluster, Switzerland; **T. Xie, T. Edwards, J. Michler, X. Maeder, Ivo Utke**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland

Tuesday Morning, June 28, 2022

<p>Plenary Session Room Auditorium - Session PS-TuM1 Plenary Session II Moderators: Jean-François de Marneffe, IMEC, Belgium, Erwin Kessels, Eindhoven University of Technology, Netherlands, Harm C.M. Knoops, Oxford Instruments Plasma Technology, Netherlands</p>		
8:30am		
8:45am	<p>INVITED: PS-TuM1-2 Plenary Lecture: Atomic Layer Etching: Real World Utilization and Future Outlook, Angélique Raley, Tokyo Electron America, Inc.; <i>H. Masanobu</i>, Tokyo Electron Miyagi, Ltd., Japan; <i>M. Hiromasa</i>, Tokyo Electron Miyagi Ltd., Japan; <i>T. Nishizuka</i>, Tokyo Electron Miyagi, Ltd., Japan; <i>P. Abel, J. Bannister</i>, Tokyo Electron America, Inc.; <i>P. Biolsi</i>, TEL Technology Center, America, LLC; <i>A. Ranjan, O. Zandi</i>, Tokyo Electron America, Inc.; <i>K. Subhadeep</i>, TEL Technology Center, America, LLC; <i>T. Hurd, Q. Wang, C. Netzband, S. Voronin, S. Arkalgud</i>, Tokyo Electron America, Inc.</p>	
9:00am		
9:15am		
9:30am	<p>INVITED: PS-TuM1-5 ALD 2021 Innovator Awardee Talk: Up, Down and All Around: Controlling Atomic Placement in ALD, Stacey Bent, Stanford University</p>	
9:45am		
10:00am	<p>PS-TuM1-7 ALE Student Award Finalist Talk: Direct Integration of HfO₂ ALD and Surface Selective ALE for Controlled HfO₂ Film Growth, Landon Keller, S. Song, G. Parsons, North Carolina State University</p>	
10:15am	<p>PS-TuM1-8 ALE Student Award Finalist Talk: First-principles Insight into Non-equilibrium Chemistry in PEALD of Silicon Nitride with Hydrofluorocarbons, Erik Cheng, G. Hwang, University of Texas at Austin; <i>P. Ventzek, Z. Chen, S. Sridhar, A. Ranjan</i>, Tokyo Electron America</p>	
10:30am	Break & Exhibits	

Tuesday Morning, June 28, 2022

	ALD Applications Room Auditorium - Session AA1-TuM2 ALD for Medical Applications Moderators: Mato Knez, CIC nanoGUNE, Spain, Angel Yanguas-Gil, Argonne National Lab	ALD Applications Room Van Rysselberghe - Session AA2-TuM2 ALD for FEOL Moderators: Cheol Seong Hwang, Seoul National University, Korea (Republic of), Jonas Sundqvist, BALD Engineering AB, Sweden
10:45am	AA1-TuM2-1 Plasma-assisted ALD of IrO ₂ for Neuroelectronic Applications, Valerio Di Palma , A. Pianalto, University of Milano Bicocca, Department of Materials Science, Italy; M. Perego , G. Tallarida, CNR-IMM, Unit of Agrate Brianza, Italy; M. Fanciulli , University of Milano Bicocca, Department of Materials Science. CNR-IMM, Unit of Agrate Brianza, Italy	INVITED: AA2-TuM2-1 High ALD Equipment and Precursor Demand and 5-Year Forecast Due to Continued Semiconductor Device Scaling and Fab Expansions, Jonas Sundqvist , Stockholm, Sweden
11:00am	AA1-TuM2-2 Hydrophilic Surface Modification of Microfluidic Channel by Room Temperature PEALD SiO ₂ , Chien-Wei Chen , Taiwan Instrument Research Institute, NARLabs, Taiwan; Y. Yu , B. Li , National Yang Ming Chiao Tung University, Taiwan	
11:15am	AA1-TuM2-3 Atomic Layer Deposition (ALD) on 5-Aminosalicylic Acid for Delayed and Targeted Drug Release Treatment of Inflammatory Bowel Disease, Jaynlynn Sosa , University of Central Florida; P. Banerjee , University of Central Florida	AA2-TuM2-3 High-k Gate Dielectrics for ScAlN Barrier HEMT Structures, Neeraj Nepal , V. Wheeler , U.S. Naval Research Laboratory; . Downey , U.S. Army Research Laboratory; . Hardy , D. Meyer , U.S. Naval Research Laboratory
11:30am	INVITED: AA1-TuM2-4 Atomic Layer Deposition Enables Dimensionless, Biocompatible Encasings for Medical Implants Pro-Longing Their Lifetime, Juhani Taskinen , R. Ritasalo , M. Pudas , T. Blomberg , M. Matvejeff , Picosun Oy, Finland	AA2-TuM2-4 Ultra-thin High-κ Dielectrics Growth by ALD on MoS ₂ , Emanuela Schilirò , R. Lo Nigro , CNR-IMM, Italy; S. Panasci , CNR-IMM, Department of Physics-University of Catania, Italy; A. Mio , CNR-IMM, Italy; S. Agnello , F. Gelardi , Department of Physics and Chemistry, University of Palermo, Italy; F. Roccaforte , F. Giannazzo , CNR-IMM, Italy
11:45am		AA2-TuM2-5 Fabrication of a MOSFET Based on ZnO Using an Atomic Layer 3D-printer, Sonja Stefanovic , N. Gheshlaghi , Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany; I. Kundrata , Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany; D. Zanders , Ruhr Universität Bochum, Germany; J. Bachmann , Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany

Tuesday Morning, June 28, 2022

	<p>ALD Fundamentals Room Van Eyck - Session AF-TuM2 Simulation, Modeling, and Theory of ALD II Moderators: Simon Elliot, Schrödinger, Inc., Michael Nolan, University College Cork, Ireland</p>	<p>Atomic Layer Etching Room Baekeland - Session ALE-TuM2 Atomic Layer Cleaning (ALC), ALE Integrated with ALD, and Alternative ALE Approaches Moderators: Jessica Murdzek, University of Colorado Boulder, Fred Roozeboom, University of Twente & LionVolt B.V., Netherlands</p>
10:45am	<p>INVITED: AF-TuM2-1 Theoretical Understanding on the Chemical Principles of Atomic Layer Deposition, Bonggeun Shong, Hongik University, Korea (Republic of)</p>	<p>INVITED: ALE-TuM2-1 ALE from Selective Etching to Selective Deposition, Christophe Vallee, SUNY POLY, Albany; M. Bonvalot, M. Jaffal, LTM-CNRS, University Grenoble Alpes, France; C. Mannequin, Tsukuba University, Japan; R. Gassilloud, N. Posseme, T. Chevolleau, CEA/LETI-University Grenoble Alpes, France</p>
11:00am		
11:15am	<p>AF-TuM2-3 A Study of Area-Selective TiO₂ Deposition Using First Principles Based Thermodynamic Simulations, Yukio Kaneda, Sony Semiconductor Solutions Corporation, Belgium; E. Marques, Katholieke Universiteit Leuven, Belgium; S. Armini, A. Delabie, M. Setten, G. Pourtois, IMEC, Belgium</p>	<p>ALE-TuM2-3 Surface Modification for Atomic Layer Etching of TiAlC Using Floating Wire-Assisted Liquid Vapor Plasma at Medium Pressure, Thi-Thuy-Nga Nguyen, Nagoya University, Japan; K. Shinoda, H. Hamamura, Hitachi, Japan; K. Maeda, K. Yokogawa, M. Izawa, Hitachi High-Tech, Japan; K. Ishikawa, M. Hori, Nagoya University, Japan</p>
11:30am	<p>AF-TuM2-4 Chemistry of Plasma Enhanced Atomic Layer Deposition of Co using CoCp₂ and Nitrogen/Hydrogen Plasma, Ji Liu, M. Nolan, Tyndall National Institute, University College Cork, Ireland</p>	<p>ALE-TuM2-4 Atomic Layer Processing Approach for Achieving Abrupt Epitaxial Interfaces on AlN, Virginia Wheeler, D. Boris, A. Lang, G. Jernigan, N. Nepal, S. Walton, Naval Research Laboratory</p>
11:45am	<p>AF-TuM2-5 Adsorption Mechanics of Trimethyl Metal Precursors on AlN, GaN and InN, Karl Rönnby, H. Pedersen, L. Ojamäe, Linköping University, Sweden</p>	

Tuesday Afternoon, June 28, 2022

Room Auditorium		
1:30pm	AM1-TuA-1 Atomic Layer Deposition Equipment Used in Industrial Production of More Than Moore Devices, <i>Taguhi Yeghayan</i> , Yole Développement, France	ALD for Manufacturing Session AM1-TuA ALD for Manufacturing I Moderators: Hardik Jain, TNO/Holst Center, Netherlands, Maksym Plakhotnyuk, ATLANT 3D Nanosystems
1:45pm	AM1-TuA-2 Spatial ALD on Large-Area Porous Substrates: How to Avoid Supply Limitation and Maximize Precursor Efficiency?, <i>Paul Poedt</i> , SALDtech B.V., Netherlands	
2:00pm	AM1-TuA-3 Atmospheric-Pressure Plasma-Assisted Spatial Atomic Layer Deposition of Silicon Nitride, <i>Jie Shen</i> , TNO-Holst Centre, Netherlands; <i>F. Roozeboom</i> , University of Twente, Netherlands; <i>A. Mamelì</i> , TNO-Holst Centre, Netherlands	
2:15pm	INVITED: AM1-TuA-4 Recent Development of Large Scale ALD for Non-IC industrial Applications, <i>Wei-Min Li</i> , Jiangsu Leadmicro Nano Technology Co. Ltd., China	
2:30pm		
2:45pm	AM1-TuA-6 An Innovative Method for in Situ Calorimetry of ALD/ALE Surface Reactions, <i>Anil Mane</i> , <i>J. Elam</i> , Argonne National Laboratory	
3:00pm	AM1-TuA-7 Production-Suitable 200 Mm Batch ALD/MLD Thin Film Encapsulation Toward Flexible OLED Manufacturing, <i>Jesse Kalliomäki</i> , <i>E. Rimpilä</i> , <i>R. Ritasalo</i> , <i>T. Sarnet</i> , Picosun Oy, Finland	
3:15pm	AM1-TuA-8 Roll-to-Roll ALD Coatings for Battery Cell Interfaces at Production Scale, <i>Andrew Cook</i> , Beneq, Finland	
3:30pm	Break & Exhibits	
3:45pm		
4:00pm	AM2-TuA-11 High-Throughput Nanocoating Technology for Energy Applications, <i>Dmitrii Osadchii</i> , Delft IMP B.V., Netherlands	ALD for Manufacturing Session AM2-TuA ALD for Manufacturing II Moderators: Rong Chen, Huazhong University of Science and Technology, China, Ruud van Ommen, Delft University of Technology, Netherlands
4:15pm	AM2-TuA-12 Optimizing Vapor Delivery of Transition-Metal Diazadienyl Complexes for ALD Processes, <i>James Maslar</i> , <i>B. Kalanyan</i> , NIST-Gaithersburg; <i>V. Dwivedi</i> , NASA Goddard Space Flight Center; <i>D. Moser</i> , EMD Electronics	
4:30pm	INVITED: AM2-TuA-13 Inherently Selective Atomic Layer Process Based on Spatial Micronozzles: Microreactor Selective Area Direct Atomic Processing (μ SADALP), <i>Maksym Plakhotnyuk</i> , ATLANT 3D Nanosystems, Denmark; <i>I. Kundrata</i> , ATLANT 3D Nanosystems, Germany; <i>J. Bachmann</i> , Friedrich-Alexander-University Erlangen-Nürnberg (FAU), ATLANT 3D Nanosystems, Germany	
4:45pm		
5:00pm	AM2-TuA-15 Atomic Layer Rastering, <i>Ivan Kundrata</i> , ATLANT 3D Nanosystems ApS, Slovakia	
5:15pm	AM2-TuA-16 Maskless Localized Atomic Layer Deposition: Surface Structuration and Functionalization, <i>L. Midani</i> , <i>W. Ben-Yahia</i> , <i>V. Salles</i> , Université Lyon 1, France; <i>Catherine Marichy</i> , CNRS-LMI, France	
5:30pm	AM2-TuA-17 New Spatial ALD/CVD Approaches for Area-Selective Deposition, <i>David Muñoz-Rojas</i> , CNRS-LMGP, Université Grenoble Alpes, France; <i>C. Masse de la Huerta</i> , LMGP, France; <i>V. Nguyen</i> , phenikaa University, Viet Nam; <i>A. Sekkat</i> , <i>C. Crivello</i> , <i>F. Toldrà-Reig</i> , <i>C. Jimenez</i> , <i>O. Graniel</i> , <i>M. Dibenedetto</i> , LMGP, France	

Tuesday Afternoon, June 28, 2022

Room Baekeland	
1:30pm	INVITED: ALE1-TuA-1 Surface Reaction Mechanisms by Metal-Organic Compound Formations in Atomic Layer Etching Processes, Tomoko Ito , Osaka University, Japan; A. Basher , King Abdullah University of Science and Technology, Saudi Arabia; K. Karahashi , S. Hamaguchi , Osaka University, Japan
1:45pm	
2:00pm	ALE1-TuA-3 Atomic Layer Etching of Al ₂ O ₃ on Metallic Substrates Using <i>in situ</i> Auger Electron Spectroscopy, Andrew Cavanagh , S. George , University of Colorado at Boulder
2:15pm	ALE1-TuA-4 In-situ Optical Emission Spectroscopy as a Tool to Characterize Cyclic Quasi-Atomic Layer Etching, Yoana Ilarionova , Lund University, Sweden; M. Karimi , AlixLabs, Sweden; D. Lishan , D. Geerpuram , Plasma-Therm LLC; R. Jafari Jam , D. Suyatin , J. Sundqvist , AlixLabs, Sweden; I. Maximov , Lund University, Sweden
2:30pm	ALE1-TuA-5 Atomic Layer Etching of CAR/SOG in EUV Patterning of 300 Mm Wafers - Selectivity and Roughness Mechanisms, Francois Loyer , P. Bezard , R. Blanc , F. Lazzarino , S. De Gendt , IMEC, Belgium
2:45pm	ALE1-TuA-6 Ab Initio Calculations on the Thermal Atomic Layer Etching of Copper, Xiao Hu , J. Schuster , Chemnitz University of Technology, Fraunhofer Institute for Electronic Nano Systems, Center for Materials, Architectures and Integration of Nanomembranes (MAIN), Research Fab Microelectronics Germany., Germany
3:00pm	ALE1-TuA-7 Transport and Reaction Kinetics Modelling of Thermal ALE in High Aspect Ratio Hafnium Oxide Structures, Andreas Fischer , D. Mui , A. Routzahn , R. Gasvoda , J. Sims , T. Lill , Lam Research Corporation
3:15pm	ALE1-TuA-8 Damage Formation in the Underlying Silicon after the Removal of Silicon Nitride by Atomic Layer Etching: A Molecular Dynamics Study, Jomar Tercero , Osaka University, Japan; A. Hirata , Sony Semiconductor Solutions Corporation, Japan; M. Isobe , K. Karahashi , Osaka University, Japan; M. Fukasawa , Sony Semiconductor Solutions Corporation, Japan; S. Hamaguchi , Osaka University, Japan
3:30pm	Break & Exhibits
3:45pm	
4:00pm	INVITED: ALE2-TuA-11 Plasma Processes for Isotropic and Anisotropic Atomic Layer Etching, Adrie Mackus , Eindhoven University of Technology, Netherlands
4:15pm	
4:30pm	ALE2-TuA-13 SF ₆ and Ar Plasma Based Atomic Layer Etching of Gallium Nitride (GaN), Lamia Hamraoui , T. Tillocher , P. Lefauchaux , GREMI CNRS/Université d'Orléans, France; M. Boufnichel , STMicroelectronics Tours, France; R. Dussart , gremi CNRS/Université d'Orléans, France
4:45pm	ALE2-TuA-14 SF ₆ Physisorption based Cryo-ALE of Silicon, Jack Nos , G. Antoun , T. Tillocher , P. Lefauchaux , GREMI CNRS/Université d'Orléans, France; A. Girard , C. Cardinaud , IMN CNRS/Université de Nantes, France; R. Dussart , GREMI CNRS/Université d'Orléans, France
5:00pm	ALE2-TuA-15 Precision and Repeatability of ALE Process in AlGaN/GaN Layer by in-Situ Etch Depth Monitoring, Sungjin Cho , Oxford Instruments Plasma Technology, UK; M. Loveday , Oxford Instruments Plasma Technology, UK; A. Newton , Oxford Instruments Plasma Technology, UK; D. Cornwell , M. Binetti , T. Zettler , Laytec AG, Germany
5:15pm	ALE2-TuA-16 Investigation of Self-Limiting Sputtering of Fluorinated Al ₂ O ₃ and HfO ₂ : Where's the Limit?, Nicholas Chittock , W. Hoek , S. Balasubramanyam , Eindhoven University of Technology, The Netherlands; J. Escandon Lopez , K. Buskes , ProDrive Technologies, Netherlands; H. Knoops , Oxford Instruments Plasma Technology, UK; E. Kessels , A. Mackus , Eindhoven University of Technology, The Netherlands
5:30pm	ALE2-TuA-17 Isotropic Plasma ALE of Al ₂ O ₃ using F-based Plasma and AlMe ₃ : Key Parameters, Upscaling and Applications, Yi Shu , Oxford Instruments Plasma Technology, UK; N. Chittock , E. Kessels , A. Mackus , Eindhoven University of Technology, Netherlands; A. O'Mahony , Oxford Instruments Plasma Technology, UK; H. Knoops , Oxford Instruments Plasma Technology, Netherlands
	<p>Atomic Layer Etching Session ALE1-TuA In situ Studies, Mechanisms and Modeling of ALE Moderators: Sumit Agarwal, Colorado School of Mines, Dmitry Suyatin, Lund University, Sweden</p> <p>Atomic Layer Etching Session ALE2-TuA Plasma and/or Anisotropic ALE II Moderators: Ankur Agarwal, KLA-Tencor, Christophe Vallee, SUNY POLY, Albany</p>

Tuesday Afternoon, June 28, 2022

Room Van Eyck		
1:30pm	AF1-TuA-1 Reaction Mechanisms of ALD of Transition Metal Oxides from Metal Amido Complexes and Water, <i>Giulio D'Acunzio, R. Timm, J. Schnadt</i> , Lund University, Sweden	ALD Fundamentals Session AF1-TuA Characterization I Moderators: Jan-Willem Clerix, Imec, Belgium, Aile Tamm, University of Tartu, Estonia
1:45pm	AF1-TuA-2 An <i>in-Vacuo</i> X-Ray Photoelectron Spectroscopy Study of the Reaction of Trimethylaluminum With Water, Oxygen and Argon Plasma for Low Temperature Atomic Layer Deposition, <i>L. Cao, Jin Li, M. Minjauw, J. Dendooven, C. Detavernier</i> , Department of Solid State Sciences, Ghent University, Belgium	
2:00pm	AF1-TuA-3 <i>In Vacuo</i> Cluster Tool for Studying Reaction Mechanisms in ALD and ALE Processes, <i>Heta-Elisa Nieminen, M. Chundak, M. Putkonen, M. Ritala</i> , University of Helsinki, Finland	
2:15pm	AF1-TuA-4 Watching the ALD of Pt Films in Real-Time, <i>Esko Kokkonen</i> , Max IV Laboratory, Sweden; <i>M. Kaipio, H. Nieminen</i> , University of Helsinki, Finland; <i>F. Rehman</i> , Lund University, Sweden; <i>V. Miikkulainen</i> , Aalto University, Finland; <i>M. Putkonen, M. Ritala, S. Huotari</i> , University of Helsinki, Finland; <i>J. Schnadt</i> , Lund University, Sweden; <i>S. Urpelainen</i> , University of Oulu, Finland	
2:30pm	AF1-TuA-5 In Situ X-Ray Studies of Lamellar Dichalcogenides Prepared by Molecular Layer Deposition and Thermal Annealing, <i>Petros Abi Younes</i> , CEA/LETI-University Grenoble Alpes, France; <i>E. Skopin</i> , LTM - MINATEC - CEA/LETI, France; <i>M. Zhukush, C. Camp</i> , Univ. Lyon, CNRS-UCB Lyon 1, France; <i>N. Aubert, G. Ciatto</i> , Synchrotron SOLEIL Beamline SIRIUS, France; <i>N. Schneider</i> , UMR-IPVF, CNRS, France; <i>M. Richard</i> , ESRF, France; <i>N. Gauthier</i> , CEA/LETI-University Grenoble Alpes, France; <i>E. Quadrelli</i> , Univ. Lyon, CNRS, France; <i>D. Rouchon</i> , CEA/LETI-University Grenoble Alpes, France; <i>H. Renevier</i> , Laboratoire des Matériaux et du Génie Physique, France	
2:45pm	AF1-TuA-6 <i>In Situ</i> Spectroscopic Ellipsometry of 3D Patterned Nanostructures for Real Time Profile Evolution During ALD, <i>S. Novia Berriel</i> , University of Central Florida; <i>N. Keller</i> , Onto Innovation; <i>P. Banerjee</i> , University of Central Florida	
3:00pm	INVITED: AF1-TuA-7 Pyroelectric Calorimetry: Measuring the Time-Resolved Heat of ALD Half Reactions, <i>Ashley R. Bielinski, A. Martinson</i> , Argonne National Laboratory	
3:15pm		
3:30pm	Break & Exhibits	
3:45pm		
4:00pm	INVITED: AF2-TuA-11 Get the Full Picture: Full-Range Time-Resolved In Situ Mass Spectrometry During ALD, <i>Andreas Werbrouck, J. Dendooven, C. Detavernier</i> , Ghent University, Belgium	ALD Fundamentals Session AF2-TuA Characterization II Moderators: Bart Macco, Eindhoven University of Technology, Netherlands, Juan Santo-Domingo Peñaranda, Ghent University, Belgium
4:15pm		
4:30pm	AF2-TuA-13 Strategies to Produce Boron-Containing ALD Thin Films Using Trimethyl Borate Precursor: From Thermal to Plasma to Combined-Plasma Approach, <i>Arpan Dhara, A. Werbrouck, J. Li, J. Dendooven, C. Detavernier</i> , Ghent University, Belgium	
4:45pm	AF2-TuA-14 Examining Large Grain Growth and Low Temperature Crystallization Kinetics for TiO ₂ Thin Films Prepared by Atomic Layer Deposition (ALD), <i>Jamie Wooding, K. Kalaitzidou, M. Losego</i> , Georgia Institute of Technology	
5:00pm	AF2-TuA-15 Deposition and Characterization of Hafnium Dioxide Films Embedding Nickel Nanoparticles, <i>Markus Otsus, J. Merisalu, T. Viskus, T. Kahro, A. Tarre, K. Kalam, A. Kasikov, P. Ritslaid, J. Kozlova, K. Kukli, A. Tamm</i> , University of Tartu, Estonia	
5:15pm	AF2-TuA-16 Biased QCM for Studies of Reductive Surface Chemistry Induced by Plasma Electrons, <i>Pentti Niiranen, H. Nadhom, D. Lundin, H. Pedersen</i> , Linköping University, IFM, Sweden	
5:30pm	AF2-TuA-17 NHC Monolayer Growth Behaviour and Film Durability Measured by QCM, <i>Eden Goodwin</i> , Carleton University, Canada; <i>A. Veinot, I. Singh</i> , Queens University, Canada; <i>P. Ragogna</i> , Western University, Canada; <i>C. Crudden</i> , Queens University, Canada; <i>S. Barry</i> , Carleton University, Canada	

Tuesday Afternoon, June 28, 2022

Room Van Rysselberghe	
1:30pm	INVITED: AA1-TuA-1 Atomic Layer Deposition for Display from Photoluminescent Materials to Devices and Encapsulation, <i>Rong Chen</i> , State Key Laboratory of Digital Manufacturing Equipment and Technology, School of Mechanical Science and Engineering, China
1:45pm	
2:00pm	AA1-TuA-3 High-Stability and High-Performance PEALD-IZO/IGZO Top-Gate Thin-Film Transistor via Nano-Scale Thickness Control, <i>J. Park, Yoon-Seo Kim, W. Lee, H. Oh, T. Hong</i> , Hanyang University, Korea
2:15pm	AA1-TuA-4 Atomic Layer Infiltration Enabled Flexible Encapsulations, <i>Fan Yang, Y. Zhang, D. Wen, K. Cao</i> , State Key Laboratory of Digital Manufacturing Equipment and Technology, School of Mechanical Science and Engineering, Huazhong University of Science and Technology, China; <i>R. Chen</i> , State Key Laboratory of Digital Manufacturing Equipment and Technology, School of Mechanical Science and Engineering, Huazhong University of Science and Technology, China
2:30pm	AA1-TuA-5 Impacts of Deposition Temperatures on Insulation Properties of Atmospheric Pressure Spatial ALD Al ₂ O ₃ Thin Films for Flexible PEALD IGZO TFT, <i>Dong-Gyu Kim, K. Yoo, S. Lee, W. Lee, J. Park</i> , Hanyang University, Korea
2:45pm	AA1-TuA-6 Enhanced Crystallinity Using in-Situ Atomic Layer Deposition Process of Al ₂ O ₃ on P-Type SnO Thin Film and the Associated Device Applications, <i>Hye-Mi Kim, S. Choi, J. Park</i> , Hanyang University, Korea
3:00pm	AA1-TuA-7 Oxidant- and Temperature-Dependent Growth Behavior of ALD-Processed ZnO Thin Films and their Applications in Transistors, <i>J. Yang, A. Bahrami, Sebastian Lehmann, S. He, N. Kornelius</i> , Leibniz Institute for Solid State and Materials Research, Germany
3:15pm	AA1-TuA-8 Origins of High Off-current of P-type SnO TFTs and Reduction by Source/drain Modulation, <i>Su-Hwan Choi, H. Kim, J. Park</i> , Hanyang University, Korea (Republic of)
3:30pm	Break & Exhibits
3:45pm	
4:00pm	AA2-TuA-11 Electron-Enhanced Atomic Layer Deposition (EE-ALD) of Titanium Nitride Using Ammonia Reactive Background Gas, <i>Zachary Sobell, S. George</i> , University of Colorado at Boulder
4:15pm	AA2-TuA-12 Atomic Layer Deposition of MoNx Thin Film Using New Synthesized Liquid Mo Precursor, <i>Byunguk Kim, T. Kang, S. Kim, H. Jeon</i> , Hanyang University, Korea
4:30pm	AA2-TuA-13 Atomic Layer Deposition of Tungsten Nitride Thin Film using WCl ₅ as a Fluorine-free W Precursor and its Application into the Diffusion Barrier for Cu and Ru Interconnects, <i>Kang-Min Seo, G. Bea, S. Kim</i> , School of Materials Science and Engineering, Yeungnam University, Korea (Republic of)
4:45pm	AA2-TuA-14 Thermal Atomic Layer Deposition of Ru With H ₂ Molecules for Emerging Ru Interconnects, <i>Yohei Kotsugi</i> , Chemical Materials Development Department, TANAKA Precious Metals, Japan; <i>Y. Kim, T. Cheon, S. Kim</i> , School of Materials Science and Engineering, Yeungnam University, Korea (Republic of)
5:00pm	AA2-TuA-15 The Oxygen-Free Thermal ALD and Area Selective ALD of Ruthenium Film, <i>I. Liu</i> , SAFC HITECH TAIWAN CO., LTD., Taiwan; <i>Bhushan Zope, G. Liu</i> , EMD Performance Materials Corp.; <i>J. Woodruff</i> , EMD Electronics; <i>J. Chiu</i> , SAFC HITECH TAIWAN CO., LTD., Taiwan
5:15pm	AA2-TuA-16 ALD-Prepared 2D Transition Metal Dichalcogenides as Diffusion Barriers in Interconnects, <i>Sanne Deijkers, A. de Jong</i> , Eindhoven University of Technology, The Netherlands; <i>H. Sprey, J. Maes</i> , ASM Belgium; <i>E. Kessels, A. Bol, A. Mackus</i> , Eindhoven University of Technology, The Netherlands
5:30pm	AA2-TuA-17 Evolution of Structural and Electrical Properties of Molecular Layer Deposited Hafniconic Films after Thermal Processing for Applications in Low-K Etch Stops, <i>Vamseedhara Vemuri</i> , Lehigh University; <i>S. King</i> , Intel, USA; <i>N. Strandwitz</i> , Lehigh University

**ALD Applications
Session AA1-TuA
ALD for Display Applications
Moderators:** Jin-Seong Park, Hanyang University, Korea (Republic of), Ganesh Sundaram, Veeco-CNT

**ALD Applications
Session AA2-TuA
ALD for BEOL
Moderators:** Scott Clendenning, Intel Corporation, John Conley, Oregon State University

ALD Applications

Room Arveledeforum & Pedro de Gante - Session AA-TuP

ALD Applications Poster Session

5:45pm

AA-TuP-1 Atomic Layer Deposition of MoS₂ Decorated TiO₂ Nanotubes for Photoelectrochemical Water Splitting, **Chengxu Shen**, E. Wierzbicka, Institut für Chemie and IRIS Adlershof, Humboldt-Universität zu Berlin, Germany; T. Schultz, R. Wang, N. Koch, Institut für Physik and IRIS Adlershof, Humboldt-Universität zu Berlin, Germany; N. Pinna, Institut für Chemie and IRIS Adlershof, Humboldt-Universität zu Berlin, Germany

AA-TuP-2 Impact of ALD-TiO₂ Overlay on Hematite Nanorod Arrays for the Photoelectrochemical Water Splitting, **Jiao Wang**, Humboldt University Berlin, Germany; L. Liccardo, Ca' Foscari University of Venice, Italy; H. Habibimarkani, E. Moretti, Ca' Foscari University of Venice, Italy; N. Pinna, Humboldt University Berlin, Germany

AA-TuP-3 Improvement of the Performance of III-IV Multi-Junction Solar Cells Using Atomic Layer Deposited Antireflective Coatings, **Mantas Drazdys**, D. Astrauskyė, R. Drazdys, T. Paulauskas, Center for Physical Sciences and Technology, Lithuania

AA-TuP-4 Li-Nb-O Protection Layer for Li-ion Battery Electrodes via Atomic Layer-Deposition, **Dae Woong Kim**, W. Hong, J. Park, Hyundai Motor Company, Korea (Republic of); S. Oh, Hyundai Motor Comp, Korea (Republic of); M. Lee, S. Noh, T. Park, Hanyang University, Korea

AA-TuP-5 ALD Ge-Se-S Amorphous Chalcogenide Alloys via Post Plasma Sulfurization for OTS Applications, **Myoungsub Kim**, S. Park, T. Kim, S. Seo, M. Lee, S. Chung, T. Lee, H. Kim, Yonsei University, Korea

AA-TuP-6 Low-Temperature ALD for Electronic Applications, **Jun Yang**, A. Bahrami, S. Mukherjee, S. He, S. Lehmann, K. Nielsch, Institute for Metallic Materials, Leibniz Institute of Solid State and Materials Science Dresden, Germany

AA-TuP-7 Atomic Layer Deposition, Annealing and Characterization of FeS_x Layers, **Zsofia Baji**, I. Cora, Z. Fogarassy, B. Pécz, Centre for Energy Research, Hungary

AA-TuP-8 N-Doped TiO₂ Nanotubes Synthesized by Atomic Layer Deposition for the Degradation of Acetaminophen, **Syreina Alsayegh**, Institut Européen des Membranes, France; M. Bechelany, Institut Européen des membranes, France; M. ABID, F. TANOS, Institut Européen des Membranes, France; G. LESAGE, F. Zaviska, Institut Européen des membranes, France

AA-TuP-9 Iron-Nickel Oxide and Iron-Nickel Sulfide Deposited by Atomic Layer Deposition for the Oxygen Evolution Reaction in Alkaline Media, **Estelle Jozwiak**, Humboldt University Berlin, Germany; N. Pinna, Humboldt University Berlin, Germany

AA-TuP-10 Forming-Free Non-Linear Resistive Switching Memory Devices With ALD-Grown HfO_x/TaO_x Bilayers, **Mari Napari**, F. Simanjuntak, S. Stathopoulos, T. Prodromakis, University of Southampton, UK

AA-TuP-11 Film Properties of Al₂O₃ on Si and Graphene substrates deposited by UV Enhanced Atomic Layer Deposition, **Geonwoo Park**, J. Shin, D. Go, J. An, Seoul National University of Science and Technology, Korea (Republic of)

AA-TuP-12 Atomic Layer Deposition of Ruthenium Using a Zero-Valent Precursor, **Ella Rimpila**, J. Hamalainen, P. King, Picosun Oy, Finland

AA-TuP-13 Wake-Up-Free Metal-Ferroelectric-Metal Capacitor Consisted of Hf_{0.5}Zr_{0.5}O₂ and Tin(200) Bottom Electrode, **Dong Hee Han**, A. Lee, M. Nam, Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University, Korea (Republic of); T. Moon, Inorganic Material Lab, Material Research Center, Samsung Advanced Institute of Technology, Korea (Republic of); W. Jeon, Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University, Korea (Republic of)

AA-TuP-14 Investigating the Y-Doped HfO₂ Thin Film for the Metal-Insulator-Metal Capacitor Application Using a Cocktail Precursor, **Younguk Ryu**, H. Seol, Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University, Korea (Republic of); H. Oh, I. Hwang, Y. Park, SK trichem Co. Ltd., Korea (Republic of); W. Jeon, Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University, Korea (Republic of)

AA-TuP-15 Atomic-layer-deposited Molybdenum Dioxide Thin Films as Promising Electrode Candidates for Application to Next-generation-dynamic-random-access-memory Devices, **Yewon Kim**, A. Lee, D. Han, S. Moon, T. Youn, M. Lee, W. Jeon, Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University, Korea (Republic of)

AA-TuP-16 Improving Properties of Atomic-layer deposited ZrO₂ Thin Film by Employing the Discrete Feeding Method with Various Zr-based Precursors, **Aejin Lee**, M. Nam, Y. Kim, W. Jeon, Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University, Korea (Republic of)

AA-TuP-17 Atomic Layer Deposition of AlN Films With and Without Plasma Piezoelectric Effect, **Noureddine Adjeroud**, Luxembourg Institute of Science and Technology (LIST), Luxembourg

AA-TuP-18 Growth of Rutile TiO₂ on VO₂ by Atomic Layer Deposition for DRAM Capacitor Application, **Seungwoo Lee**, D. Han, M. Nam, Y. Kim, Kyung Hee University, Korea (Republic of); D. Kim, K. Kim, Y. Park, SK Trichem Co. Ltd., Korea (Republic of); W. Jeon, Kyung Hee University, Korea (Republic of)

AA-TuP-19 Superconducting Nbn: Sputtered Versus Plasma ALD With Bias, **Tania Hemakumara**, Y. Shu, Oxford Instruments Plasma Technology, UK; H. Knoops, Oxford Instruments Plasma Technology, Netherlands; R. Renzas, Oxford Instruments Plasma Technology; V. Gauthier, V. Giglia, S. Nicolay, Université de Sherbrooke, Canada; M. Weides, University of Glasgow, UK; M. Piara-Ladrière, D. Drouin, Université de Sherbrooke, Canada; R. Sundaram, Oxford Instruments Plasma Technology, UK

AA-TuP-20 Membrane Design by ALD/MLD for Hydrogen Sensing, **S. Sayegh**, M. Drobek, A. Julbe, **Mikhael Bechelany**, European Institute of Membranes, France

AA-TuP-21 Schottky Diodes to Gallium Nitride Prepared by Plasma-Enhanced Atomic Layer Deposition, **Suzanne Mohney**, I. Campbell, A. Molina, A. Agyapong, M. Thomas, Penn State University

AA-TuP-22 Development of High-k Gate Insulator Deposition Process for Next-Generation Thin Film Transistor Using Atomic Layer Deposition, **Min Kyeong Nam**, A. Lee, D. Han, S. Lee, W. Jeon, Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University, Korea (Republic of)

AA-TuP-23 Co-Coated Si X-Ray Optics With Atomic Layer Deposition, **Yukine Tsuji**, A. Fukushima, D. Ishi, Y. Ezoe, K. Ishikawa, M. Numazawa, T. Uchino, S. Sakuda, A. Inagaki, Y. Ueda, H. Morishita, L. Sekiguchi, T. Murakawa, Tokyo Metropolitan University, Japan; K. Mitsuda, National Astronomical Observatory of Japan

AA-TuP-24 Optimization of High-Performance P-Channel Sno Thin Film Transistor Using Atomic Layer Deposition, **Myeong Gil Chae**, J. Kim, Seoul National University of Science and Technology, Korea (Republic of); B. Park, T. Chung, Korea Research Institute of Chemical Technology (KRICT), Korea (Republic of); S. Kim, Korea Institute of Science and Technology (KIST), Korea (Republic of); J. Han, Seoul National University of Science and Technology, Korea (Republic of)

AA-TuP-25 Intense Pulsed Light Annealing of Low-temperature Atomic-layer-deposited SnO Thin Films for P-channel Thin Film Transistor, **Jina Kim**, M. Chae, Seoul National University of Science and Technology, Korea (Republic of); B. Park, T. Chung, Korea Research Institute of Chemical Technology (KRICT), Korea (Republic of); J. Choi, K. Cho, Korea institute of industrial technology (KITECH), Korea (Republic of); W. Lee, Myongji University, Korea (Republic of); J. Han, Seoul National University of Science and Technology, Korea (Republic of)

AA-TuP-26 Hafnium Zirconium Oxide-Based Ferroelectric Field Effect Transistor With Atomic-Layer-Deposited Indium Gallium Tin Oxide Channel Layer, **Hyeonhui Jo**, J. Won, P. Youn, J. Kim, H. Jang, W. Jo, J. Han, Department of Materials Science and Engineering, Seoul National University of Science and Technology, Korea (Republic of)

AA-TuP-27 Interface and Electrolyte Design to Enable Stable Zn Metal Anode for Aqueous Zn-ion Batteries, **Jian Liu**, University of British Columbia, Canada

AA-TuP-28 ALD-Coated Mesoporous Films for Electrocatalysis, **Nicola Pinna**, M. Raza, Institut für Chemie and IRIS Adlershof, Humboldt-Universität zu Berlin, Germany; M. Frisch, R. Krähnert, Department of Chemistry, Technische Universität Berlin, Germany

AA-TuP-29 Nanoscale Energy Transport Processes in Chalcogenide-Based Phase Change Materials, **Kiumars Aryana**, P. Hopkins, University of Virginia

AA-TuP-30 Comparison of the Insulating Properties of Aluminum Oxide (Al₂O₃) High-K Layers at the Early Growth Stages of by Thermal- and Plasma-Enhanced Atomic Layer Deposition on AlGaIn/GaN Heterostructures, **Raffaella Lo Nigro**, E. Schilirò, P. Fiorenza, G. Greco, F. Giannazzo, F. Roccaforte, CNR-IMM, Italy

AA-TuP-31 Amorphous ALD Alumina On a Quartz Plate Enables Significant Cost of Ownership (CoO) Reduction in Metal Plasma Etch Chambers, **Jeff Young**, Intel Corporation; G. Mata-Osoro, P. Spring, INFICON Ltd., Liechtenstein; J. Delle Donne, Ultra Clean Technologies (UCT); R. Parise, Ultra Clean Technologies; V. Venkatesan, Ultra Clean Technologies (UCT)

AA-TuP-32 Application of Powder Atomic Layer Deposition to Solid Oxide Fuel Cell Electrodes, **Sung Eun Jo**, H. Kim, B. Yang, J. An, Seoul National University of Science and Technology, Korea (Republic of)

AA-TuP-33 Evaluation of Temporal vs. Spatial Atomic Layer Deposition Techniques for the Production of Ceramic Nanofiltration Membranes, *J. Peper*, University of Twente, Netherlands; *H. Jain*, TNO/Holst Cent, Netherlands; *M. Nijboer*, *A. Nijmeijer*, *F. Roozeboom*, *A. Kovalgin*, **Mieke Luiten-Olieman**, University of Twente, Netherlands

AA-TuP-34 Robust YF₃ Batch ALD Process With a Novel Precursor for Plasma Etch Tool Component Protection, *J. Kalliomäki*, *E. Manninen*, *J. Mariam*, **Peter King**, *R. Ritasalo*, Picosun Oy, Finland

AA-TuP-35 Surface Modification of Atomic Layer Deposited Metal Oxides: Vapor-Phase Grafting of Functional Silanes, **Vepa Rozyyev**, University of Chicago; *R. Pathak*, *R. Shevate*, Argonne National Laboratory, USA; *J. Murphy*, University of Chicago; *A. Mane*, Argonne National Laboratory, USA; *S. Sibener*, University of Chicago; *J. Elam*, Argonne National Laboratory, USA

AA-TuP-36 Developing ALD RuO_x Process for Coating Porous Current Collectors for Supercapacitor Applications, **Sakeb Hasan Choudhury**, LAAS-CNRS, France; *G. Vignaud*, Université Bretagne Sud, France; *P. Dubreuil*, *D. Pech*, LAAS-CNRS, France

AA-TuP-37 Defect Engineering in Corrosion Protected Semiconductor Photoanodes by Atomic Layer Deposition of Titania, **Oliver Bienek**, *B. Fuchs*, *M. Kuhl*, *D. Silva*, *T. Rieth*, *A. Henning*, *I. Sharp*, Walter Schottky Institut and Physics Department, Technische Universität München, Germany

AA-TuP-38 Film Characteristics of Lanthanide Oxide Thin Film by Using Atomic Layer Deposition Method, **Suin Kim**, *M. Kim*, EMD Performance Materials, Korea (Republic of); *S. Ivanov*, EMD Performance Materials

AA-TuP-39 Advanced 3D Mxene ALD Assembly Through Precious Metal Conformal Coating for Clean Energy Applications, **Debananda Mohapatra**, *Y. Kim*, *Y. Park*, *S. Kim*, Yeungnam University, Korea (Republic of)

AA-TuP-40 Toward a Rational Surface Texture Design of FBR-ALD Pt/CCatalyst to Enhance PEMFC Performance, **Ji-Hu Baek**, *S. Kwon*, *S. Lee*, Pusan National University, Korea (Republic of)

AA-TuP-41 Plasma Enhanced Atomic Layer Deposition (PEALD) of Silicon Nitride for FEOL Applications, **Marco Lisker**, *M. Kalishettyhalli Mahadevaiah*, IHP Frankfurt (Oder), Germany

AA-TuP-42 Mechanical and Optical Properties of Alumina Doped Hafnia Deposited by Plasma Assisted Atomic Layer Deposition, **Taivo Jõgiäas**, University of Tartu, Estonia

AA-TuP-43 Al Doped ZnO Thin Film on High Aspect Ratio Structure (1:10) by ALD Process for Biomedical Application, **Po-Tsung Hsieh**, *T. Tsai*, *T. Wang*, *C. Lin*, *T. Chen*, *H. Tu*, Core Facility Center, National Cheng Kung University, Taiwan

AA-TuP-44 H₂ Separative Membrane Fabricated by Thermal Atomic Layer Deposition, **Clémence Badie**, Aix-Marseille University, France; *M. Drobek*, CNRS- Univ. Montpellier, France; *M. Bechelany*, CNRS/Univ. Montpellier, France; *J. Decams*, Annealsys, France; *L. Santinacci*, Aix-Marseille University, France

AA-TuP-45 Universal Relationship between Spontaneous Polarization and Coercive Field of HfZrO Ferroelectric, **Min Liao**, *J. Xiang*, *X. Wang*, Institute of Microelectronics, Chinese Academy of Sciences, China

AA-TuP-46 Synthesis of Noble Metal Nanoparticles by ALD for Electrocatalysis, **Sitaramanjaneya Mouli Thalluri**, *R. Zazpe*, *H. Sopha*, *J. Macak*, University of Pardubice, Czechia

AA-TuP-47 Protection of Platinum Electrocatalysts for Water Electrolysis Using Atomic Layer Deposited Silicon Dioxide, **Ming Li**, *R. Kortlever*, *R. van Ommen*, Delft University of Technology, Netherlands

AA-TuP-48 ALD-Deposition of Cathodic Materials for 3D Li-Ion Micro Batteries - Ongoing Results, **Antoine Peisert**, *G. Lamblin*, *D. Lenoble*, *N. Adjeroed*, Luxembourg Institute of Science and Technology (LIST), Luxembourg

AA-TuP-49 Disentangling the Effect of Diffusion and Solubility in the Gas Barrier Properties of ALD Alumina Thin Films, *S. Bhudia*, *J. Barbe*, *M. Gerard*, Luxembourg Institute of Science and Technology (LIST), Luxembourg; *V. Cassio*, MET-LUX S.A., Luxembourg; **Renaud Leturcq**, Luxembourg Institute of Science and Technology (LIST), Luxembourg

AA-TuP-50 Vapor Phase Infiltration (VPI) on Polymers Fibers and Fabrics for Multifunctional and Antimicrobial Textile, **Natalia Chamorro**, *M. Knez*, CIC nanoGUNE, Spain

AA-TuP-51 Impact of Substrate Bias on the Wear Rate of Plasma Enhanced Atomic Layer Deposited TiVN, **Mark Sowa**, Veeco ALD; *M. Chowdhury*, Department of Materials Science and Engineering, Lehigh University; *K. Van Meter*, *T. Babuska*, Department of Mechanical Engineering, Florida State University; *A. Kozen*, Department of Materials Science & Engineering, University of Maryland, College Park; *N. Strandwitz*, Department of Materials Science and Engineering, Lehigh University; *B. Krick*, Department of Mechanical Engineering, Florida State University

AA-TuP-52 Thermal and Aqueous Media Stability of Sr₂MgSi₂O₇:Eu²⁺, Dy³⁺ Phosphors Encapsulated by Al₂O₃ Using Atomic Layer Deposition (ALD), **Erkul Karacaoglu**, Karamanoglu Mehmetbey University, Turkey; *A. Okyay*, Okyay Technologies and with the Stanford University; *H. Yurdakul*, Kutahya Dumlupinar University, Turkey; *M. Losego*, Georgia Institute of Technology, USA

AA-TuP-53 Fabrication of High-Quality Titanium Nitride Thin Film as a Cu Diffusion Barrier Layer by Hollow Cathode Plasma Atomic Layer Deposition at Low Temperature, **Ha Young Lee**, *J. Han*, *B. Choi*, Seoul National University of Science and Technology, Korea (Republic of)

AA-TuP-54 Adjusting Crystal Structure in an In-Zn-O System Deposited by PEALD and its TFT Application, **TaeHyun Hong**, *Y. Kim*, *J. Park*, Hanyang University, Korea (Republic of)

AA-TuP-55 Pt-coated Si X-ray Optics with Plasma Atomic Layer Deposition for GEO-X Mission, **Masaki Numazawa**, *D. Ishi*, *A. Fukushima*, *Y. Ezo*, *K. Ishikawa*, *S. Sakuda*, *T. Uchino*, *A. Inagaki*, *H. Morishita*, *Y. Ueda*, *T. Murakawa*, *Y. Tsuji*, *L. Sekiguchi*, Tokyo Metropolitan University, Japan; *K. Mitsuda*, National Astronomical Observatory of Japan

AA-TuP-56 Structural and Optical Properties of Atomically Engineered Ir/Al₂O₃ Heterostructures, **Pallabi Paul**, *P. Schmitt*, Friedrich Schiller University Jena, Germany; *Z. Wang*, *W. Li*, *M. Kling*, Ludwig-Maximilians-University of Munich, Max Planck Institute of Quantum Optics, Germany; *A. Tünnermann*, Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Germany; *A. Szeghalmi*, Fraunhofer Institute for Applied Optics and Precision Engineering, Germany

AA-TuP-57 Broadband Absorbers by ALD: An Opportunity for Solar-Driven Applications, **Mario Ziegler**, *V. Ripka*, Leibniz Institute of Photonic Technology, Germany; *P. Cheng*, TU Ilmenau, Germany; *K. Kc*, *H. Wagner*, *U. Huebner*, Leibniz Institute of Photonic Technology, Germany; *D. Wang*, *P. Schaaf*, TU Ilmenau, Germany

AA-TuP-58 PE-ALD Synthesis and Characterization of Silver Nanoparticles and Ultrathin Films, **Petru Lunca-Popa**, Luxembourg Institute of Science and Technology (LIST), Luxembourg; *S. Guillemot*, ASM, Korea (Republic of); *R. Leturcq*, Luxembourg Institute of Science and Technology (LIST), Luxembourg

AA-TuP-59 Bipolar and Unipolar Resistive Switching in HfO₂ Based Films Embedding Ni Particles, **Joonas Merisalu**, *M. Otsus*, *T. Viskus*, *T. Kahro*, *A. Tarre*, *A. Kasikov*, *P. Ritslaid*, *J. Kozlova*, *J. Aarik*, *K. Kukli*, *A. Tamm*, University of Tartu, Estonia

AA-TuP-60 Novel Sulfide and Nitride Materials by Plasma Enhanced Atomic Layer Deposition, **Jakob Zessin**, SENTECH Instruments GmbH, Germany; *M. Hugel*, *T. Reindl*, SF Nanostructuring Lab, Max Planck Institute for Solid State Research, Germany; *K. Küster*, SF Interface Analysis, Max Planck Institute for Solid State Research, Germany; *P. Plate*, SENTECH Instruments GmbH, Germany

AA-TuP-61 Atomic Layer Deposition of Epsilon Near Zero Transparent Conducting Oxides, **Emily Duggan**, Tyndall National Institute, University College Cork, Ireland; *D. Ghindani*, Tampere University, Finland; *J. Lin*, Tyndall National Institute, University College Cork, Ireland; *H. Caglayan*, Tampere University, Finland; *I. Povey*, Tyndall National Institute, University College Cork, Ireland

AA-TuP-62 Magnetic Domain Creation by Local Reduction of Nickel Oxide Films, **Gabriele Botta**, BRTA CIC nanoGUNE, Italy; *M. Knez*, Nanomaterials Senior Scientists Ikerbasque professor in BRTA CIC nanoGUNE, Croatia

AA-TuP-63 Optical and Electrical Device Properties of Plasma-ALD Grown β-Ga₂O₃, *A. Rezk*, Khalifa University of Science, Technology & Research, United Arab Emirates; *I. Saidjafarzoda*, University of Connecticut; **Ali Kemal Okyay**, Stanford University; *A. Nayfeh*, Khalifa University of Science, Technology & Research, United Arab Emirates; *N. Birykli*, University of Connecticut

AA-TuP-64 The Electrical and Physical Characterization of n-type MoO_x Thin-Film Fabricated by Plasma-Enhanced Atomic Layer Deposition, *D. Wang*, Feng Chia University, Taiwan; **Pi-Chun Juan**, *C. Tou*, Ming Chi University of Technology, Taiwan; *W. Cho*, *C. Chen*, *C. Kei*, National Applied Research Laboratories, Taiwan

AA-TuP-65 Enhanced Self-Assembled Monolayer Surface Coverage by ALD NiO in P-I-N Perovskite Solar Cells, *N. Phung*, *M. Verheijen*, *A. Tadinova*, *K. Datta*, *M. Verhage*, Eindhoven University of Technology, Netherlands; *A. Al-Ashouri*, *H. Köbler*, *X. Li*, *A. Abate*, *S. Albrecht*, Helmholtz Zentrum Berlin, Germany; **Mariadriana Creatore**, Eindhoven University of Technology, Netherlands

AA-TuP-66 Direct Chemical Vapour Deposition of Graphene on Atomic Layer Deposited Functional Nickel Oxide, **Geedhika Poduval**, *D. Ji*, *S. Bremner*, *R. Joshi*, *B. Hoex*, UNSW Sydney, Australia

AA-TuP-67 The Role of Defects in Tuning the Properties of Highly Conductive Cuprous Oxide Thin Films Revealed Through Positron Annihilation Spectroscopy, **Abderrahime Sekkat**, LMGP/IMEP-LAHC/SIMAP, France; *M. Oskar Liedke*, HZDR, Germany; *V. Huong Nguyen*, Phenikaa, Viet Nam; *M. Butterling*, HZDR, Germany; *F. Baiutti*, *J. de Dios Sirvent*, IREC, Spain; *M. Weber*, *L. Rapenne*, *D. Bellet*, LMGP, France; *G. Chichignoud*, SIMAP, Grenoble-INP, CNRS, France; *A. Kaminski-Cachopo*, IMEP-LAHC, France; *E. Hirschmann*, *A. Wagner*, HZDR, Germany; *D. Muñoz-Rojas*, LMGP, France

AA-TuP-68 Highly Conformal CoO_x Layer Formed by Atomic Layer Deposition for High Performance Supercapacitors, *S. Adhikari*, *G. Noh*, Chonnam National University, Korea (Republic of); **do heyong kim**, 5-404, Engineering Building 5., Korea (Republic of)

AA-TuP-69 Ultra-low Resistivity Molybdenum Carbide Thin Films Deposited by Plasma-Enhanced Atomic Layer Deposition Using a Cyclopentadienyl-based Precursor, **Min-Ji Ha**, *J. Choi*, *J. Ahn*, Hanyang University, Korea (Republic of)

AA-TuP-70 A Simple Strategy to Realize Super Stable Ferroelectric Capacitor via Interface Engineering, **Hyo-Bae Kim**, Hanyang University, Korea (Republic of); *K. Dae*, *J. Jang*, Korea Basic Science Institute (KBSI), Korea (Republic of); *J. Ahn*, Hanyang University, Korea (Republic of)

AA-TuP-71 Area-Selective Atomic Layer Deposition Brings Plasmonic Biosensors Into the Electronic Age, **Corbin Feit**, University of Central Florida; *P. Rathi*, *S. Singamaneni*, Washington University in St. Louis; *P. Banerjee*, University of Central Florida

AA-TuP-73 Annealed ALD TiN_x Layers for Through-Silicon Superconducting Interconnects, **Kestutis Grigoras**, *P. Eskelinen*, VTT Technical Research Centre of Finland, Ltd, Finland; *M. Caputo*, VTT Technical Research Centre of Finland, Ltd, Finland; *D. Datta*, VTT Technical Research Centre of Finland, Ltd, Finland; *A. Ronzani*, VTT Technical Research Centre of Finland, Ltd, Finland; *E. Mannila*, *J. Govenius*, VTT Technical Research Centre of Finland, Ltd, Finland

AA-TuP-74 Plasma-Enhanced Atomic Layer Deposition of Crystalline NiO Films Using Nickelocene and O₂ Plasmas for BEOL p-Channel Devices, *S. Ilhom*, *A. Mohamamad*, *M. Niemiec*, *D. Zacharzewski*, *P. Chardavoyne*, *S. Abdari*, **Necmi Biyikli**, University of Connecticut

ALD for Manufacturing

Room Arteveldeforum & Pedro de Gante - Session AM-TuP

ALD for Manufacturing Poster Session

5:45pm

AM-TuP-1 Atmospheric Pressure Plasma Enhanced Spatial ALD for Energy Applications, **Corne Frijters**, *V. Tielen*, *R. Pals*, *J. Smeltink*, *K. Driessen*, *H. Heezen*, *P. Poedt*, SALDtech B.V., Netherlands

AM-TuP-2 Computational Fluid Dynamics Analysis of Cyclone-Type Vaporizer for Atomic Layer Deposition, *D. Shin*, **Cha-Hee Kim**, Sejong University, Korea (Republic of); *S. Seo*, *Y. Lee*, *K. Jeong*, *D. Kim*, GO Element Co. Ltd., Korea (Republic of); *W. Lee*, Sejong University, Korea (Republic of)

AM-TuP-3 Lightweight, Modular Model for Multizone Spatial ALD, **Angel Yanguas-Gil**, *J. Elam*, Argonne National Laboratory

AM-TuP-4 Effect of Surface Treatment of Tan for Rapid Nucleation and Growth of ALD Ru Films, **Corbin Feit**, *U. Kumar*, *L. Tomar*, *Z. Caribe*, *N. Berriel*, *S. Seal*, *P. Banerjee*, University of Central Florida

AM-TuP-5 How to Improve ALD Process Consistency with Optimized Process Valves and Pneumatic Control Systems, **Masroor Malik**, *J. Butler*, Swagelok Company

AM-TuP-6 Spatial Atomic Layer Deposition for the Coating of Tubular Membranes, *F. Toldra-Reig*, Laboratoire des Matériaux et du Génie Physique, LMGP-CNRS, France; **Clément Lausecker**, Institut Européen des Membranes, IEM-CNRS / Laboratoire des Matériaux et du Génie Physique, LMGP-CNRS, France; *M. Weber*, Laboratoire des Matériaux et du Génie Physique, LMGP-CNRS, France; *M. Bechelany*, Institut Européen des Membranes, IEM-CNRS, France; *D. Muñoz-Rojas*, Laboratoire des Matériaux et du Génie Physique, LMGP-CNRS, France

AM-TuP-7 Hybrid PEALD/PECVD Reactor Design for Depositing Thick GaN Films on Si, **Birrol Kuyel**, *J. Marshall*, *A. Alphonse*, NANO-MASTER, Inc.

AM-TuP-8 Deposition of CeO_{2-δ} Thin Films by Atmospheric-Pressure Spatial Atomic Layer Deposition, **Ozden Celikbilek**, Univ. Grenoble Alpes, CNRS, France; *M. Bianchini*, Catalonia Institute for Energy Research (IREC), Spain; *F. Toldra-Reid*, Univ. Grenoble Alpes, CNRS, Spain; *A. Sekkat*, Univ. Grenoble Alpes, CNRS, France; *N. Alayo*, *A. Tarancón*, Catalonia Institute for Energy Research (IREC), Spain; *D. Muñoz-Rojas*, Univ. Grenoble Alpes, CNRS, France

AM-TuP-9 Thermoelectric Performance Improvement by Interface Engineering With Atomic-Layer-Deposited ZnO Thin Films on Snse Powders, **Myeong Jun Jung**, *Y. Weon*, *J. Park*, *Y. Yun*, *J. Byun*, *B. Choi*, Seoul National University of Science and Technology, Korea (Republic of)

AM-TuP-10 Mechanical Properties of Atomic-Layer-Deposited Al₂O₃/Y₂O₃ Nanolaminate Films on Aluminum Towards Protective Coatings, **Barbara Putz**, *J. Niemelä*, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland; *G. Mata-Osoro*, INFICON Ltd., Liechtenstein, Switzerland; *C. Guerra-Nunez*, SwissCluster, Switzerland; *K. Mackoszy*, *I. Utke*, Empa, Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland

AM-TuP-11 How to Improve Control of Plasma-Assisted Ald/Ale Processes by Accurate Measurement of Ion Flux, Ion Energy Distributions, and Ion-Neutral Ratios in Commercial Plasma Tools Using RFEAs, *A. Rawat*, *C. Linnane*, **Sean Knott**, *T. Gilmore*, Impedans Ltd, Ireland

Area Selective ALD

Room Arteveldeforum & Pedro de Gante - Session AS-TuP

Area Selective ALD Poster Session

5:45pm

AS-TuP-1 Thermally Assisted Area Selective Atomic Layer Deposition, **Bart de Braaf**, TU / Eindhoven, Netherlands

AS-TuP-2 An Approach to the Prevention of Chemical Deterioration of Surfaces During Ex-Situ Patterning Steps, **Bernhard van der Wel**, *T. Aarnink*, *A. Kovalgin*, University of Twente, the Netherlands

AS-TuP-3 Surface Dependence and Selectivity During Atomic Layer Deposition of Ge₂Sb₂Te₅, **Jyoti Sinha**, *L. Gallis*, *J. Clerix*, KU Leuven, IMEC Belgium, Belgium; *L. Nyns*, IMEC Belgium, Belgium; *A. Delabie*, KU Leuven, IMEC Belgium, Belgium

AS-TuP-4 In-situ Surface Cleaning and Area Selective Deposition of SiO_xN_y film on Cu patterns using Anhydrous N₂H₄, **Su Min Hwang**, *J. Kim*, *D. Le*, *Y. Jung*, *K. Tan*, *J. Veyan*, University of Texas at Dallas; *D. Alvarez*, *J. Spiegelman*, RASIRC; *J. Kim*, University of Texas at Dallas

AS-TuP-5 Inherently Area-Selective Atomic Layer Deposition of SiO₂ through Chemoselective Adsorption of an Aminodisilane Precursor on Oxide versus Nitride Substrates, **Jeong-Min Lee**, *J. Lee*, Hanyang University, Korea (Republic of); *H. Oh*, *B. Shong*, Hongik University, Korea (Republic of); *T. Park*, *W. Kim*, Hanyang University, Korea (Republic of)

AS-TuP-6 Organothioli Inhibitor Instigated Area Selective Deposition of HfO₂, **Summal Zaha**, *B. Gu*, Incheon National University, Korea (Republic of); *F. Pieck*, *R. Tonner*, Universität Leipzig, Germany; *H. Lee*, Incheon National University, Korea (Republic of)

Wednesday Morning, June 29, 2022

<p>Plenary Session Room Auditorium - Session PS-WeM1 Plenary Session III Moderators: Jolien Dendooven, Ghent University, Belgium, Christophe Detavernier, Ghent University, Belgium, Paul Poodt, Holst Centre / TNO, Netherlands</p>		
8:30am		
8:45am	<p>INVITED: PS-WeM1-2 ALD 2022 Innovator Awardee Talk: Prospects of Atomic Layer Deposition for Cell-Stacking Technology of Semiconductor Memory Devices, Cheol Seong Hwang, Seoul National University, Korea (Republic of)</p>	
9:00am		
9:15am	<p>PS-WeM1-4 ALD Student Award Finalist Talk: Improving Self-Aligned Atomic Layer Deposited Gate Stacks for Electronic Applications, Amy Brummer, D. Aziz, M. Filler, E. Vogel, Georgia Institute of Technology</p>	
9:30am	<p>PS-WeM1-5 ALD Student Award Finalist Talk: Towards High Throughput Molecular Layer Deposition of Alucone Films, Hardik Jain, Holst Centre / TNO, Netherlands; M. Creatore, Eindhoven University of Technology, The Netherlands; P. Poodt, Holst Centre / TNO, Netherlands</p>	
9:45am	<p>PS-WeM1-6 ALD Student Award Finalist Talk: In-situ FTIR Analysis of Selectivity Loss Mechanism of TiO₂ Atomic Layer Deposition on Aminosilane-Passivated SiO₂ and H-terminated Si, Jan-Wilem Clerix, KU Leuven, NCSU, Imec, Belgium; G. Dianat, NCSU; A. Delabie, Imec, KU Leuven, Belgium; G. Parsons, NCSU</p>	
10:00am	<p>PS-WeM1-7 ALD Student Award Finalist Talk: Sacrificial Etching Kinetics Control Extent of Pattern Alignment in Area-Selective Atomic Layer Deposition (AS-ALD) via Simultaneous Deposition and Etching, Hannah Margavio, J. Kim, North Carolina State University; N. Arellano, IBM Almaden Research Center; G. Parsons, North Carolina State University</p>	
10:15am	<p>PS-WeM1-8 ALD Student Award Finalist Talk: Depositing Metal Oxides on Metalcones: Enhancing Initial Growth Through O₂ Plasma Densification, Juan Santo Domingo Peñaranda, M. Minjauw, J. Li, S. Vandenbroucke, J. Dendooven, C. Detavernier, Ghent University, Belgium</p>	
10:30am	Break & Exhibits	

Wednesday Morning, June 29, 2022

	ALD Applications Room Baekeland - Session AA1-WeM2 ALD for Optical Applications Moderators: Parag Banerjee, University of Central Florida, Matti Putkonen, University of Helsinki, Finland	ALD Applications Room Van Rysselberghe - Session AA2-WeM2 ALD for Memory Applications I Moderators: Robert Clark, TEL Technology Center, America, LLC, Charles Dezelah, ASM, Finland
10:45am	AA1-WeM2-1 Atomic Layer Deposition of Perovskite $K(Ta_xNb_{1-x})O_3$ films on Silicon for Integrated Photonics via KOTBu and H_2O , Eric Martin , Ohio State University; <i>J. Bickford</i> , Army Research Laboratory; <i>H. Sønsteby</i> , University of Oslo, Norway; <i>R. Hoffman</i> , Army Research Laboratory; <i>R. Reano</i> , Ohio State University	AA2-WeM2-1 Sub 10-nm Ferroelectric HfO_2 Capacitors Doped with Gd, Evgeniy Skopin , <i>N. Guillaume</i> , <i>L. Alrifai</i> , <i>A. Bsiesy</i> , LTM - MINATEC - CEA/LETI, France
11:00am	AA1-WeM2-2 Low-temperature ALD Sb_2Te_3 for Self-powered Broad-band Photodetector, Jun Yang , <i>A. Bahrami</i> , <i>S. Mukherjee</i> , <i>S. He</i> , <i>S. Lehmann</i> , <i>K. Nielsch</i> , Institute for Metallic Materials, Leibniz Institute of Solid State and Materials Science Dresden, Germany	AA2-WeM2-2 Controlling Stochastic Resistive Switching in Organic-Inorganic Hybrid Memristor by Vapor-Phase Infiltration, A. Subramanian , Stony Brook University; <i>N. Tiwale</i> , <i>K. Kisslinger</i> , Chang-Yong Nam , Brookhaven National Laboratory
11:15am	AA1-WeM2-3 Preparation of High Mobility Indium Hydroxide Doped by Atomic Layer Deposition and Study on Photoelectric Properties, Liangge Xu , Harbin Institute of Technology, China	AA2-WeM2-3 Atomic Layer Deposited Vanadium Oxide Thin Films for Thermocromic and Microelectronic Applications, Zsofia Baji , <i>J. Volk</i> , <i>L. Pósa</i> , <i>G. Molnár</i> , Centre for Energy Research, Hungary; <i>A. Surca</i> , <i>G. Drazic</i> , National Institute of Chemistry, Slovenia
11:30am	AA1-WeM2-4 ALD MgF_2 Using $(EtCp)_2Mg$ and SF_6 Remote Plasma Source, Hoon Kim , <i>. Huang</i> , <i>. Allen</i> , <i>E. Pierce</i> , <i>J. Wang</i> , Corning Inc.	INVITED: AA2-WeM2-4 Brain-Based Inspiration: Towards Neuromorphic Computing With ALD Based Memristive Devices, E. Perez , <i>M. Kalishettyhalli Mahadevaiah</i> , <i>E. Perez-Bosch Quesada</i> , IHP - Leibniz Institut fuer innovative Mikroelektronik, Germany; <i>T. Rizzi</i> , IHP - Leibniz-Institut fuer innovative Mikroelektronik, Germany; Christian Wenger , IHP - Leibniz Institut fuer innovative Mikroelektronik, Germany
11:45am	AA1-WeM2-5 Moisture Sensitivity of ALD Metal Fluorides for Far UV Optical Coatings, Robin Rodriguez , <i>J. Hennessy</i> , <i>A. Jewell</i> , <i>S. Nikzad</i> , Jet Propulsion Laboratory (NASA/JPL)	

Wednesday Morning, June 29, 2022

	Emerging Materials Room Van Eyck - Session EM-WeM2 Molecular Layer Deposition Moderators: Arrelaine Dameron, Forge Nano, Ola Nilsen, University of Oslo, Norway	Nanostructure Synthesis and Fabrication Room Auditorium - Session NS-WeM2 2D Materials I Moderators: Gregory N. Parsons, North Carolina State University, Henrik Pedersen, Linköping University, Sweden
10:45am	EM-WeM2-1 Deposition of Copper-based Metal-Organic Framework Thin Film by Molecular Layer Deposition, Ben Gikonyo , C. Journet-Gautier, A. Fateeva, C. Marichy, Université Claude Bernard Lyon 1, France	INVITED: NS-WeM2-1 Atomic Layer Deposition of Layered Chalcogenides, Suzanne Mohney , J. Carter, I. Campbell, A. Agyapong, Penn State University
11:00am	EM-WeM2-2 ALD-Grown ZIF-8 Thin Films : Mechanism Insight Leads to Push Beyond the Current Thickness Limit, V. Perrot , Univ. Grenoble Alpes, CEA, LETI, France; A. Roussey , Univ. Grenoble Alpes, CEA, LITEN, France; M. Veillerot , A. Benayad, D. Mariolle, F. Ricoul, V. Jousseau, Univ. Grenoble Alpes, CEA, LETI, France; Elsje Alessandra Quadrelli , CNRS, Univ Lyon IRCELYON , France	
11:15am	EM-WeM2-3 Molecular Layer Deposition of Zeolitic Imidazolate Framework 8 Thin Films, Jorid Smets , A. Cruz, R. Ameloot, KU Leuven, Belgium	NS-WeM2-3 2D Alloys of WS ₂ and NbS ₂ by PEALD, Jeff Schulpen , C. Lam, Eindhoven University of Technology, The Netherlands; E. Coleman , F. Gity, Tyndall National Institute, University College Cork, Ireland; M. Mattinen , M. Verheijen, E. Kessels, Eindhoven University of Technology, The Netherlands; R. Duffy , Tyndall National Institute, University College Cork, Ireland; A. Bol , Eindhoven University of Technology, The Netherlands
11:30am	EM-WeM2-4 Mld of Phosphane-Ene Polymer Thin Films: Bringing Solution Polymer Chemistry to a Gas Phase Process, J. Lomax , The University of Western Ontario, Canada; E. Goodwin , P. Gordon, Carleton University, Canada; C. McGuinness , Solvay; C. Crudden , Queen's University, Canada; S. Barry , Carleton University, Canada; Paul J. Ragogna , The University of Western Ontario, Canada	NS-WeM2-4 2D Molybdenum Dichalcogenides by Atomic Layer Deposition, Raul Zazpe , J. Charvot, L. Hromadko, H. Sopha, J. Rodriguez Pereira , F. Bures, J. Macak, University of Pardubice, Czechia
11:45am	EM-WeM2-5 Molecular Atomic Layer Deposition of Inorganic-Organic Hybrid Dry Resist for EUV Application, Su Min Hwang , D. Le, Y. Jung, J. Veyan, University of Texas at Dallas; A. Subramanian , W. Lee, Stony Brook University/Brookhaven National Laboratory; N. Tiwale , Brookhaven National Laboratory; C. Nam , Stony Brook University/Brookhaven National Laboratory; M. Sung , J. Ahn, Hanyang University, Korea (Republic of); J. Kim , University of Texas at Dallas	NS-WeM2-5 Plasma-enhanced Atomic Layer Deposition of Crystalline MoS ₂ Thin Films Using a Novel Precursor, Jeong-Hun Choi , M. Ha, D. Kim, J. Ahn, Hanyang University, Korea (Republic of)

Wednesday Afternoon, June 29, 2022

Room Auditorium		
1:30pm	EM1-WeA-1 Self-Limiting Growth of Monocrystalline GaN Films via Sequential Triethylgallium and Forming Gas Plasma Cycles in Hollow-Cathode Plasma-ALD Reactor, <i>D. Shukla, S. Ilhom, A. Mohammad, B. Willis</i> , University of Connecticut; <i>A. Okyay</i> , Stanford University; <i>Necmi Biyikli</i> , University of Connecticut	Emerging Materials Session EM1-WeA Emerging Materials Moderators: Nathanaelle Schneider, CNRS-IPVF, France, Charles H. Winter, Wayne State University
1:45pm	EM1-WeA-2 ALD of In _{1-x} Ga _x N, <i>Henrik Pedersen, P. Rouf, C. Hsu</i> , Linköping University, IFM, Sweden	
2:00pm	EM1-WeA-3 Atomic Layer Doped Epitaxial β-Ga ₂ O ₃ Films Grown via Supercycle and Co-dosing Approaches at 240 °C, <i>Saidjafarzoda Ilhom, A. Mohammad, D. Shukla, B. Willis</i> , University of Connecticut; <i>A. Okyay</i> , Stanford University; <i>N. Biyikli</i> , University of Connecticut	
2:15pm	EM1-WeA-4 Closing in on Room-Temperature Metal-Insulator-Transitions for Next Generation Electronics by Epitaxial Nickelate ALD, <i>Linn Rykkje, H. Sønsteby, O. Nilsen</i> , University of Oslo, Norway	
2:30pm	EM1-WeA-5 Plasma-Enhanced Atomic Layer Deposition of Spinel Ferrite CoFe ₂ O ₄ and NiFe ₂ O ₄ Thin Films, <i>Mari Napari</i> , University of Southampton, UK; <i>M. Heikkilä</i> , University of Helsinki, Finland; <i>S. Kinnunen, J. Julin</i> , University of Jyväskylä, Finland; <i>T. Prodromakis</i> , University of Southampton, UK	
2:45pm	EM1-WeA-6 Engineering Maxwell-Wagner Polarization in Al ₂ O ₃ /TiO ₂ /Al ₂ O ₃ Nanolaminates Grown by Atomic Layer Deposition, <i>Partha Sarathi Padhi</i> , Raja Ramanna Centre for Advanced Technology, India; <i>R. Ajimsha, S. Rai, P. Misra</i> , Raja Ramanna Centre for Advanced Technology, India	
3:00pm	EM1-WeA-7 Plasma Enhanced Spatial ALD of Silver and Copper Thin Films at Atmospheric Pressure using B ₂ O ₃ Seed Layers, <i>Tim Hasselmann, B. Misimi</i> , University of Wuppertal, Germany; <i>N. Boysen</i> , Ruhr University Bochum, Germany; <i>D. Rogalla</i> , RUBION, Ruhr University Bochum, Germany; <i>D. Theirich</i> , University of Wuppertal, Germany; <i>A. Devi</i> , Ruhr University Bochum, Germany; <i>T. Riedl</i> , University of Wuppertal, Germany	
3:15pm	EM1-WeA-8 Silicon-Based Polymer-Derived Ceramic Coatings by Post-Processing of Pre-Ceramic MLD Thin Films, <i>Kristina Ashurbekova, M. Knez</i> , CIC nanoGUNE, Spain	
3:30pm	Break	
3:45pm		
4:00pm	NS-WeA2-11 Controlled Encapsulation of Monolayer MoS ₂ with Ultrathin Aluminum Oxide for Low Resistance Tunnel Contact Formation, <i>Alex Henning, S. Levashov, J. Primbs, M. Bissolo, T. Grünleitner, C. Qian, J. Finley, I. Sharp</i> , Walter Schottky Institute and Physics Department, Technical University of Munich, Germany	Nanostructure Synthesis and Fabrication Session NS-WeA2 2D Materials II Moderators: Suzanne Mohny, Penn State University, Riikka Puurunen, Aalto University, Finland
4:15pm	NS-WeA2-12 Synthesis of Crystalline Tungsten Disulfide Using Atomic Layer Deposition and Post-Deposition Sulfur Annealing, <i>Kamesh Mullapudi, R. Addou</i> , Oregon State University; <i>C. Dezelah, D. Moser, J. Woodruff, R. Kanjolia</i> , EMD Performance Materials; <i>J. Conley Jr.</i> , Oregon State University	
4:30pm	NS-WeA2-13 In-Situ-Prepared Protective Seed Layer by Plasma ALD on Graphene, <i>S. Riazimehr</i> , Oxford Instruments Plasma Technology, Germany; <i>A. Esteki</i> , RWTH Aachen University, Germany; <i>M. Powell</i> , Oxford Instruments Plasma Technology, UK; <i>M. Otto, G. Rinke, Z. Wang</i> , AMO GmbH, Germany; <i>A. Omahony</i> , Oxford Instruments Plasma Technology, UK; <i>M. Lemme</i> , RWTH Aachen University, Germany and AMO GmbH, Germany; <i>R. Sundaram</i> , Oxford Instruments Plasma Technology, UK; <i>Harm Knoops</i> , Oxford Instruments Plasma Technology, Netherlands	
4:45pm	NS-WeA2-14 Polycrystalline MoS ₂ Thin Films at 100 °C by Plasma-Enhanced Atomic Layer Deposition, <i>Mikka Mattinen, M. Verheijen</i> , Eindhoven University of Technology, The Netherlands; <i>F. Gity, E. Coleman, R. Duffy</i> , Tyndall National Institute, University College Cork, Ireland; <i>E. Kessels</i> , Eindhoven University of Technology, The Netherlands; <i>A. Bol</i> , University of Michigan, Ann Arbor and Eindhoven University of Technology	
5:00pm	NS-WeA2-15 Selectively Decorated Pt Nanoparticle on WS ₂ by Atomic Layer Deposition for High-Performance Gas Sensor, <i>Dain Shin</i> , School of Electrical and Electronic Engineering, Yonsei University, Korea (Republic of); <i>T. Nakazawa</i> , TANAKA Kikinzoku Kogyo K.K., Isehara Technical Center, Japan; <i>I. Sohn, S. Chung, H. Kim</i> , School of Electrical and Electronic Engineering, Yonsei University, Korea (Republic of)	

Wednesday Afternoon, June 29, 2022

Room Baekeland		
1:30pm	AS1-WeA-1 Polystyrene Brush Deactivation Layers for Area Selective Atomic Layer Deposition, <i>Caitlin McFeely, M. Snelgrove, K. Shiel, G. Hughes</i> , School of Physical Sciences, Dublin City University, Ireland; <i>P. Yadav, M. Morris</i> , AMBER Research Centre and School of Chemistry, Trinity College Dublin, Ireland; <i>E. McGlynn, R. O'Connor</i> , School of Physical Sciences, Dublin City University, Ireland	Area Selective ALD Session AS1-WeA Area Selective Deposition I Moderators: Amy Brummer, Georgia Institute of Technology, Il-Kwon Oh, Ajou University, Korea (Republic of)
1:45pm	AS1-WeA-2 Area Selective Deposition of Ruthenium using a W Precursor Inhibitor, <i>Chi Thang Nguyen, N. Trinh, M. Lee, H. Lee</i> , Department of Materials Science and Engineering, Incheon National University, Korea (Republic of)	
2:00pm	AS1-WeA-3 Electron-beam Functional Group Patterning on HOPG for Area-Selective Atomic Layer Deposition, <i>Matthias Young, G. Koerner, Q. Wyatt</i> , University of Missouri; <i>B. Bateman</i> , Berea College; <i>C. Boyle, M. Maschmann</i> , University of Missouri	
2:15pm	AS1-WeA-4 Inhibitor Adsorption During Area-Selective ALD: Do Mixtures of Adsorption Configurations Lead to a Loss of Selectivity?, <i>Marc Merckx, I. Tezsevin, P. Yu, J. Li, R. Lengers, E. Kessels</i> , Eindhoven University of Technology, Netherlands; <i>T. Sandoval</i> , Universidad Técnica Federico Santa María, Chile; <i>A. Mackus</i> , Eindhoven University of Technology, Netherlands	
2:30pm	AS1-WeA-5 Area Selective Deposition for ZnO Hard Mask by 2D-like Carbon fabricated by Molecular Layer Deposition, <i>Seunghwan Lee, G. Baek, H. Yang</i> , Hanyang University, Korea; <i>T. Van, B. Shong</i> , Hongik University, Korea (Republic of); <i>J. Park</i> , Hanyang University, Korea	
2:45pm	AS1-WeA-6 Bifunctionality of Si Precursors to Enable Area Selective Deposition of Ru and Atomic Layer Deposition of SiO ₂ , <i>Sumaira Yasmeen, B. Gu, Y. Kang, H. Lee</i> , Incheon National University, Korea (Republic of)	
3:00pm	INVITED: AS1-WeA-7 TiO ₂ Area-Selective Deposition: Using Selectivity Loss Mechanisms to Advance Applications in Nanopatterns and EUV Resist Materials, <i>Rachel Nye</i> , North Carolina State University; <i>K. Van Dongen</i> , KU Leuven, Belgium; <i>D. De Simone, J. de Marneffe, H. Oka</i> , IMEC, Belgium; <i>G. Parsons</i> , North Carolina State University; <i>A. Delabie</i> , IMEC, Belgium	
3:15pm		
3:30pm	Break	
3:45pm		
4:00pm	AS2-WeA-11 Intrinsic Area-Selective Atomic Layer Deposition of Aluminium Nitride, <i>Bernhard van der Wel, T. Aarnink, A. Kovalgin</i> , University of Twente, the Netherlands	Area Selective ALD Session AS2-WeA Area Selective Deposition II Moderators: Stacey Bent, Stanford University, Rachel Nye, North Carolina State University
4:15pm	AS2-WeA-12 Surface-Diffusion Control Enables Tailored-Aspect-Ratio Nanostructures in Area-Selective Atomic Layer Deposition, <i>Philip Klement, D. Anders, L. Gümbel, M. Bastianello, F. Michel, J. Schörmann, M. Elm</i> , Institute of Experimental Physics I & Center for Materials Research (ZfM), Justus Liebig University Giessen, Giessen, Germany; <i>C. Heiliger</i> , Institute of Theoretical Physics & Center for Materials Research (ZfM), Justus Liebig University Giessen, Giessen, Germany; <i>S. Chatterjee</i> , Institute of Experimental Physics I & Center for Materials Research (ZfM), Justus Liebig University Giessen, Giessen, Germany	
4:30pm	INVITED: AS2-WeA-13 Study on Area-Selective Atomic Layer Deposition of Al ₂ O ₃ with a Series of Al Precursors, <i>Il-Kwon Oh</i> , Ajou University, Korea (Republic of)	
4:45pm		
5:00pm	AS2-WeA-15 Selective Hydration of TiO ₂ and In ₂ O ₃ : A Strategy for Site-Selective Atomic Layer Deposition at Surface Defects, <i>A. Martinson, E. Kamphaus, J. Jones, N. Shan</i> , Argonne National Laboratory, USA; <i>C. Luo, A. Hock</i> , Illinois Institute of Technology; <i>L. Cheng</i> , Argonne National Laboratory, USA; <i>Ashley R. Bielinski</i> , Argonne National Laboratory	
5:15pm	AS2-WeA-16 Self-Assembled Monolayer and "Click" Chemistry Deposition Treatments for Area-Specific Processing, <i>Chad Brick, R. Liberatore</i> , Gelest, Inc; <i>B. Arkles</i> , Department of Chemistry, Temple University; <i>J. Goff</i> , Gelest, Inc	

Wednesday Afternoon, June 29, 2022

Room Van Eyck	
1:30pm	INVITED: EM2-WeA-1 Vapor Phase Infiltration of Polymers for the Synthesis of Organic-Inorganic Hybrid Materials: Process Kinetics, Chemical Pathways, and Final Hybrid Structure, <i>Mark Losego</i> , Georgia Institute of Technology
1:45pm	
2:00pm	EM2-WeA-3 Atomic Layer Deposition on Polymer Thin Films: On the Role of Precursor Infiltration and Reactivity, <i>Robin Petit, J. Li, B. Van de Voorde, S. Van Vlierberghe, P. Smet, C. Detavernier</i> , Ghent University, Belgium
2:15pm	EM2-WeA-4 Obtaining Robust Hydrophilic Surface on Soft Polymer Through Atmospheric Pressure ALD, <i>Albert Santoso, B. van der Berg, V. van Steijn, R. van Ommen</i> , Delft University of Technology, Netherlands
2:30pm	EM2-WeA-5 Modified 3D Printed Architectures: Effects of Infiltration by Alumina on ABS, <i>Atilla Varga, S. Barry</i> , Carleton University, Canada
2:45pm	EM2-WeA-6 Polymer-Inorganic Hybrids for Inducing Self-Healing Functionality in Metal Oxides, <i>Oksana Yurkevich, E. Modin</i> , CIC nanoGUNE, Spain; <i>I. Šarić, M. Petravić</i> , University of Rijeka, Croatia; <i>M. Knez</i> , CIC nanoGUNE, Spain
3:00pm	EM2-WeA-7 Tailoring the Interfacial Interactions of Porous Polymer Membranes to Accelerate Atomic Layer Deposition: The Latent Path to Antifouling Membranes, <i>Rahul Shevate, V. Rozyyev, R. Pathak, A. Mane, S. Darling, J. Elam</i> , Argonne National Laboratory, USA
3:15pm	EM2-WeA-8 Ruthenium Nanostructures via Sequential Infiltration Synthesis in Self-Assembled Diblock Copolymer Thin Films, <i>Nithin Poonkottil</i> , Ghent University, Belgium; <i>E. Solano</i> , ALBA Synchrotron, Spain; <i>A. Muriqi, M. Nolan</i> , Tyndall National Institute, University College Cork, Ireland; <i>C. Detavernier, J. Dendooven</i> , Ghent University, Belgium
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4:00pm	INVITED: EM3-WeA-11 Photoactive Hybrid Materials by MLD, <i>Ola Nilsen, P. Hansen</i> , University of Oslo, Norway
4:15pm	
4:30pm	EM3-WeA-13 Cerium (III) based Hybrid Inorganic-Organic Thin Films by ALD/MLD, <i>Parmish Kaur</i> , Ruhr University Bochum, Germany; <i>A. Muriqi</i> , Tyndall National Institute, University College Cork, Ireland; <i>J. Wree</i> , Ruhr University Bochum, Germany; <i>R. Ghijasi, M. Safdar</i> , Aalto University, Finland; <i>M. Nolan</i> , Tyndall National Institute, University College Cork, Ireland; <i>M. Karppinen</i> , Aalto University, Finland; <i>A. Devi</i> , Ruhr University Bochum, Germany
4:45pm	EM3-WeA-14 Modifying the Physico-Chemical Properties of Polymer Nanofiltration Membranes with Metal Oxide ALD, <i>Kirti Sankhala, T. Segal-Peretz</i> , Technion, Israel
5:00pm	EM3-WeA-15 Modelling of the Growth of Al ₂ O ₃ -Based Hybrid Films: Role of Terminal Groups in Aromatic Molecules, <i>Arbresha Muriqi</i> , Tyndall National Institute, University College Cork, Ireland; <i>M. Karppinen</i> , Aalto University, Finland; <i>M. Nolan</i> , Tyndall National Institute, University College Cork, Ireland
5:15pm	EM3-WeA-16 Engineering Biomimetic Biocompatible and Selectively Antibacterial Ultrathin Films by Vapor Phase Chemistry, <i>Karina Ashurbekova, K. Ashurbekova</i> , CIC nanoGUNE, Spain; <i>A. Muriqi</i> , Tyndall National Institute, University College Cork, Ireland; <i>L. Barandiaran, B. Alonso-Lerma</i> , CIC nanoGUNE, Spain; <i>I. Šarić</i> , University of Rijeka, Croatia; <i>E. Modin, R. Perez-Jimenez</i> , CIC nanoGUNE, Spain; <i>M. Petravić</i> , University of Rijeka, Croatia; <i>M. Nolan</i> , Tyndall National Institute, University College Cork, Ireland; <i>M. Knez</i> , CIC nanoGUNE, Spain

**Emerging Materials
Session EM2-WeA
Vapor Phase Infiltration**
Moderators: Anjana Devi, Ruhr University Bochum, Germany, Maarit Karppinen, Aalto University, Finland

**Emerging Materials
Session EM3-WeA
Hybrid Coatings**
Moderators: Christophe Detavernier, Ghent University, Belgium, Mark Losego, Georgia Institute of Technology

Wednesday Afternoon, June 29, 2022

Room Van Rysselberghe		
1:30pm	<p>AA1-WeA-1 Effects of Ultra-thin Atomic Layer Deposited MgO Buffer Layer on Structural and Electrical Properties of Beo and HfO₂ Films for Dynamic Random Access Memory Capacitors, <i>Bo Wen Wang, H. Song, S. Byun, D. Kwon, J. Lim, H. Seo, T. Kim, H. Paik, J. Shin, C. Hwang</i>, Seoul National University, Korea (Republic of)</p>	<p>ALD Applications Session AA1-WeA ALD for Memory Applications II Moderators: Nouredine Adjeroud, Luxembourg Institute of Science and Technology (LIST), Luxembourg; Christian Wenger, IHP - Leibniz Institut fuer innovative Mikroelektronik, Germany</p>
1:45pm	<p>AA1-WeA-2 Comparison of TiO_xN_{1-x} Layer Formation at Ferroelectric-Hf_xZr_{1-x}O₂/TiN Interface by H₂O and O₂ Plasma Gases During Atomic Layer Deposition, <i>Takashi Onaya</i>, National Institute of Advanced Industrial Science and Technology/Research fellow of Japan Society for the Promotion of Science, Japan; <i>T. Nabatame, T. Nagata, S. Ueda</i>, National Institute for Materials Science, Japan; <i>Y. Jung, H. Hernandez-Arriaga, J. Mohan, J. Kim</i>, The University of Texas at Dallas; <i>C. Nam, E. Tsai</i>, Brookhaven National Laboratory; <i>H. Ota, Y. Morita</i>, National Institute of Advanced Industrial Science and Technology, Japan</p>	
2:00pm	<p>AA1-WeA-3 Atomic Layer Deposition of Ternary Germanium-Sulfur-Selenium and Its Application for Ovonic Threshold Switching, <i>Seungwon Park, M. Kim, T. Kim, S. Chung, H. Kim</i>, School of Electrical & Electronic Engineering, Yonsei University, Korea (Republic of)</p>	
2:15pm	<p>AA1-WeA-4 Scaling Down to sub-5 nm Ferroelectric Hf_{0.5}Zr_{0.5}O₂ Thin Films with Anhydrous H₂O₂ ALD Oxidant, <i>Yong Chan Jung, J. Kim, H. Hernandez-Arriaga, D. Le, S. Hwang</i>, University of Texas at Dallas; <i>D. Alvarez, J. Spiegelman</i>, RASIRC; <i>T. Onaya</i>, National Institute of Advanced Industrial Science and Technology (AIST), Japan; <i>C. Nam, Y. Zhang</i>, Brookhaven National Laboratory; <i>S. Kim</i>, Kangwon National University, Korea (Republic of); <i>J. Kim</i>, University of Texas at Dallas</p>	
2:30pm	<p>AA1-WeA-5 Engineering the Ferroelectric Properties in Hafnium Oxide by Co-Doping during Atomic Layer Deposition, <i>Kati Kühnel, M. Lederer, A. Pourjafar, K. Mertens, F. Schöne, M. Neuber, L. Roy, T. Kämpfe, K. Seidel, M. Czernohorsky</i>, Fraunhofer IPMS, Center Nanoelectronic Technologies, Germany</p>	
2:45pm	<p>AA1-WeA-6 Magnetic and Electric Properties of Atomic Layer Deposited HfO₂-Fe₂O₃ Thin Films, <i>Kristjan Kalam, M. Otsus, R. Rammula</i>, University of Tartu, Estonia; <i>J. Link</i>, National institute of chemical physics and biophysics, Estonia; <i>R. Stern</i>, National Institute of Chemical Physics and Biophysics, Estonia; <i>G. Vinuesa, S. Duenas, H. Castan</i>, University of Valladolid, Spain; <i>K. Kukli, A. Tamm</i>, University of Tartu, Estonia</p>	
3:00pm	<p>AA1-WeA-7 Atomic Layer Deposition of Antiferroelectric Perovskite Lead Hafnate Using O₂-Gas-Only as the Oxygen Precursor, <i>Nicholas Strnad, W. Sarney</i>, Army Research Laboratory; <i>G. Fox</i>, Fox Materials Consulting, LLC; <i>B. Hanrahan</i>, Army Research Laboratory; <i>B. Rayner</i>, Kurt J. Lesker Company; <i>R. Rudy, J. Pulskamp</i>, Army Research Laboratory</p>	
3:15pm	<p>AA1-WeA-8 <i>In-situ</i> Half-Cycle Study of High Purity H₂O₂-based HfO₂ Atomic Layer Deposition for Hf based Ferroelectric Devices Applications, <i>Jinhyun Kim, Y. Jung, S. Hwang, D. Le, H. Hernandez-Arriaga, K. Tan</i>, University of Texas at Dallas; <i>D. Alvarez, J. Spiegelman</i>, RASIRC; <i>S. Kim</i>, Kangwon University; <i>J. Kim</i>, University of Texas at Dallas</p>	
3:30pm	Break	
3:45pm	Break	
4:00pm	<p>INVITED: AA2-WeA-11 Mechanical Properties of ALD Coatings, <i>Aile Tamm</i>, University of Tartu, Estonia; <i>H. Piirsoo</i>, University of Tartu, Estonia; <i>J. Kozlova, T. Jõgiaas</i>, University of Tartu, Estonia</p>	
4:15pm		
4:30pm	<p>AA2-WeA-13 Superconducting Tantalum Nitride Prepared by Plasma ALD With RF Biasing for Quantum Applications, <i>Silke Peeters</i>, Eindhoven University of Technology, Netherlands; <i>C. Lennon, R. Hadfield</i>, University of Glasgow, UK; <i>E. Kessels, H. Knoops</i>, Eindhoven University of Technology, Netherlands</p>	
4:45pm	<p>AA2-WeA-14 Membrane Design by ALD for Hydrogen Purification, <i>L. Badouric, M. Drobek, A. Julbe, Mikhael Bechelany</i>, European Institute of Membranes, France</p>	

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