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
LI Live Session
NS Nanostructure Synthesis and Fabrication
TU Tutorials

Program Overview

Room /Time	Arteveldeforum & Pedro de Gante	Auditorium	Baekeland	Jan & Hubert Van Eyck	Live	Van Rysselberghe
MoM					LI1-MoM: Plenary & ALD Innovator Award Session: Monday Live	
MoA		AF1-MoA: ALD Precursors I & II	ALE1-MoA: ALE of Metals and Alloys ALE2-MoA: ALE of Metal Oxides	AF2-MoA: Plasma Enhanced ALD AF3-MoA: ALD Growth and Surface Chemistry		AA1-MoA: Emerging Applications of ALD I & II
MoP	Poster Sessions					
TuM		AA-TuM: ALD for Solar Energy Materials I & II	ALE1-TuM: ALE Selectivity and Anisotropy ALE2-TuM: ALE for GaN Devices	AF1-TuM: ALD Mechanisms and Modeling AF2-TuM: Conformality of ALD	LI2-TuM: Technical & Poster Sessions: Tuesday Live	AA2-TuM: ALD for Batteries and Energy Storage I & II
TuA		AM-TuA: Spatial, Large Area and Powder ALD I & II	ALE1-TuA: ALE of Si-based Materials ALE2-TuA: Novel ALE Techniques and Materials	AF-TuA: Characterization I & II	TU1-TuA: Tutorial Session: Tuesday Live	AA-TuA: ALD for Catalysis I & II
TuP	Poster Sessions					
WeM					LI3-WeM: Technical & Poster Sessions: Wednesday Live	
WeM2		NS-WeM: 2D Nanomaterials by ALD I	AS-WeM: Selective ALD I	EM-WeM: Organic and Organic-Inorganic Hybrid Materials I		AA-WeM: ALD for Semiconductor Applications I
WeA		NS1-WeA: 2D Nanomaterials by ALD II NS2-WeA: Nanomaterials by ALD - Nanoparticles and ALD on Polymers	AS-WeA: Selective ALD II & III	EM-WeA: Organic and Organic-Inorganic Hybrid Materials II & III	TU2-WeA: Tutorial Session: Wednesday Live	AA-WeA: ALD for Semiconductor Applications II & III

Monday Morning, June 29, 2020

Live Session
Room Live - Session LI1-MoM
Plenary & ALD Innovator Award Session: Monday Live
Moderators: Christophe Detavernier, Ghent University, Belgium, Erwin Kessels, Eindhoven University of Technology, the Netherlands

8:30am		
8:45am		
9:00am		
9:15am		
9:30am		
9:45am		
10:00am	**LI1-MoM-7** Plenary & ALD Innovator Award Session Welcome Introduction, ***Christophe Detavernier****, J Dendooven,* Ghent University, Belgium*; P Poodt,* TNO/Holst Center, Netherlands*; E Kessels,* Eindhoven University of Technology, Netherlands*; H Knoops,* Oxford Instruments Plasma Technology, Netherlands*; J de Marneffe,* IMEC, Belgium	
10:15am	**INVITED: LI1-MoM-8** Meet the ALD 2020 Innovator Awardee, ***Mikko Ritala****,* University of Helsinki, Finland	
10:30am	**INVITED: LI1-MoM-9** Selective and Atomic Scale Processes to Enable Future Nano-Electronics, ***Robert Clark****,* TEL Technology Center, America, LLC	
10:45am	Invited talk continues.	
11:00am	**INVITED: LI1-MoM-11** The First Application of ALD Technology in Display Industry, ***Hyun-Chul Choi****,* LG Display, Republic of Korea	
11:15am	**Break**	
11:30am	**INVITED: LI1-MoM-13** ALD on Powders for Catalysis, ***Frank Rosowski****,* BASF SE, Germany	
11:45am	Invited talk continues.	
12:00pm	**INVITED: LI1-MoM-15** The Flip Side of the Story: Atomic Layer Etching, ***Keren Kanarik****,* Lam Research Corp.	
12:15pm	Invited talk continues.	
12:30pm	**LI1-MoM-17** JVST Best Paper Award, Closing Remarks, & Sponsor Thank You, *C Detavernier, J Dendooven,* Ghent University, Belgium*; P Poodt,* TNO/Holst Center, Netherlands*;* ***Erwin Kessels****,* Eindhoven University of Technology, Netherlands*; H Knoops,* Oxford Instruments Plasma Technology, Netherlands*; J de Marneffe,* IMEC, Belgium	

Monday Afternoon, June 29, 2020

	Room Auditorium	
1:30pm		**ALD Fundamentals** **Session AF1-MoA** **ALD Precursors I & II** **Moderators:** Seán Barry, Carleton University, Anjana Devi, Ruhr University Bochum
1:45pm		
2:00pm	**AF1-MoA-3** Atomic Layer Deposition of Ruthenium-Containing Thin Films using RuO_4 as both the Co-Reactant and the Metal Source, ***Matthias Minjauw***, *J Feng, C Detavernier, J Dendooven,* Ghent University, Belgium	
2:15pm		
2:30pm	**AF1-MoA-5** Visual Screening of Precursors for ALD/MLD, ***Ola Nilsen***, *P Hansen,* University of Oslo, Norway	
2:45pm		
3:00pm	**AF1-MoA-7** β-Silyl-Diamides and β-Silyl-Amidoamines Lead to Unusual Co(II & IV) Precursors, ***David Zanders***, Ruhr University Bochum, Germany; *M Griffiths, G Bacic,* Carleton University, Canada; *J Masuda,* Saint Mary's University, Canada; *A Devi,* Ruhr University Bochum, Germany; *S Barry,* Carleton University, Canada	
3:15pm	**AF1-MoA-8** A Low Cost, High Efficiency TMA-Replacement for the Deposition of Pure Aluminum Nitride Films by ALD, ***Sydney Buttera***, Carleton University, Canada; *P Rouf, H Pedersen,* Linköping University, Sweden; *S Barry,* Carleton University, Canada	
3:30pm	**Break & Exhibits**	
3:45pm	**Break & Exhibits**	
4:00pm		
4:15pm	**AF1-MoA-12** Polymeric Tin Trifluoroacetate Precursors for Atomic Layer Deposition of Fluorine-Doped Tin(IV) Oxide, ***Goran Bacic***, *E Goodwin,* Carleton University, Canada; *J Gagnon, R Boyd,* University of Ottawa, Canada; *S McGarry, S Barry,* Carleton University, Canada	
4:30pm		
4:45pm	**AF1-MoA-14** Highly Volatile In(III) Triazenide Precursors for Atomic Layer Deposition of Indium Nitride, ***Nathan O'Brien***, *P Rouf, R Samii, K Rönnby,* Linköping University, Sweden; *S Buttera,* Carleton University, Canada; *V Kessler,* Swedish University of Agricultural Sciences, Sweden; *L Ojamäe, H Pedersen,* Linköping University, Sweden	

Monday Afternoon, June 29, 2020

	Room Baekeland	
1:30pm	**INVITED: ALE1-MoA-1** Mechanistic Insights into Thermal Dry Atomic Layer Etching of Metals and Alloys, ***Andrew Teplyakov***, University of Delaware	**Atomic Layer Etching** **Session ALE1-MoA** **ALE of Metals and Alloys** **Moderators:** Heeyeop Chae, Sungkyunkwan University (SKKU), Alfredo Mameli, TNO/Holst Center
1:45pm	Invited talk continues.	
2:00pm	**ALE1-MoA-3** Thermal Atomic Layer Etching of Nickel Using SO_2Cl_2 and $P(CH_3)_3$, ***Jessica Murdzek***, *S George,* University of Colorado - Boulder	
2:15pm		
2:30pm	**ALE1-MoA-5** Thermal-Plasma ALE on Selected Metals for EUV and Integration Processes, ***Xia (Gary) Sang***, *E Chen, J Chang,* University of California Los Angeles	
2:45pm	**INVITED: ALE1-MoA-6** Thermal-Cyclic Atomic Layer Etching of Cobalt via Organometallic Complex, ***Sumiko Fujisaki***, *Y Yamaguchi, H Kobayashi, K Shinoda, M Yamada, H Hamamura,* Hitachi, Japan; *M Izawa,* Hitachi High-Technologies, Japan	
3:00pm	Invited talk continues.	
3:15pm		
3:30pm	**Break & Exhibits**	
3:45pm	**Break & Exhibits**	
4:00pm		
4:15pm	**ALE2-MoA-12** Ab Initio Study on the Surface Reactions of Thermal Atomic Layer Etching of Al_2O_3, ***Xiao Hu***, Chemnitz University of Technology, Germany; *J Schuster, S Schulz,* Fraunhofer Institute for Electronic Nano Systems, Germany	**Atomic Layer Etching** **Session ALE2-MoA** **ALE of Metal Oxides** **Moderators:** Venkateswara Pallem, AirLiquide, Ishii Yohei, Hitachi High Technologies
4:30pm	**ALE2-MoA-13** Volatile Products from Thermal Atomic Layer Etching Observed using Mass Spectrometer with Line-of-Sight Detection, ***Andrew Cavanagh***, *A Lii-Rosales, S George,* University of Colorado - Boulder	
4:45pm		
5:00pm	**ALE2-MoA-15** Blocking Thermal Atomic Layer Etching with Removable Etch Stop Layers, ***David Zywotko***, University of Colorado - Boulder; *O Zandi, J Faguet, P Abel,* TEL Technology Center, America, LLC; *S George,* University of Colorado - Boulder	
5:15pm	**ALE2-MoA-16** Mechanism of the HF Pulse in the Thermal Atomic Layer Etch of HfO_2 and ZrO_2: A First Principles Study, ***Rita Mullins***, Tyndall National Institute, Ireland; *S Natarajan,* Aalto University, Finland; *S Elliott,* Schrödinger, Inc.; *M Nolan,* Tyndall National Institute, Ireland	
5:30pm	**ALE2-MoA-17** Thermal Atomic Layer Etching of Ta_2O_5 and TaN using BCl_3 and HF: Evidence for a Conversion-Etch Mechanism, *N Johnson,* ***Steven M. George***, University of Colorado - Boulder	

Monday Afternoon, June 29, 2020

	Room Jan & Hubert Van Eyck	
1:30pm		**ALD Fundamentals** **Session AF2-MoA** **Plasma Enhanced ALD** **Moderators:** Sumit Agarwal, Colorado School of Mines, Seung Wook Ryu, SK Hynix
1:45pm	**AF2-MoA-2** Ion Energy Distribution and Fluxes for a Newly-Designed Remote Plasma Source for ALD for GaN Devices, ***Harm C.M. Knoops,*** Oxford Instruments Plasma Technology, Netherlands; *K Arts, J Buiter, L Martini,* Eindhoven University of Technology, Netherlands; *T Hemakumara,* Oxford Instruments Plasma Technology, Netherlands; *M Powell,* Oxford Instruments Plasma Technology, UK; *A Kurek, Y Shu,* Oxford Instruments Plasma Technology, Netherlands; *E Kessels,* Eindhoven University of Technology, Netherlands; *C Hodson, A O'Mahony,* Oxford Instruments Plasma Technology, Netherlands	
2:00pm	**AF2-MoA-3** Plasma-Enhanced Atomic Layer Deposition of Cobalt and Cobalt Nitride: What Controls the Incorporation of Nitrogen?, ***Gerben van Straaten,*** *R Deckers, M Vos, E Kessels, A Creatore,* Eindhoven University of Technology, Netherlands	
2:15pm	**AF2-MoA-4** Recent Advances in Hollow Cathode Technology for Plasma Assisted ALD, ***K. Scott Butcher,*** *V Georgiev, D Georgieva,* Meaglow Ltd, Canada	
2:30pm	**AF2-MoA-5** Detection of Oxygen Vacancies in H_2-Plasma Enhanced Atomic Layer Deposited (PEALD) Ferroelectric Hafnia Zirconia Thin Films, ***H. Alex Hsain,*** NC State University; *G Walters,* University of Florida; *Y Lee, J Jones,* NC State University; *T Nishida,* University of Florida	
2:45pm		
3:00pm	**AF2-MoA-7** Effect of an Electric Field on the Material Properties of Hafnium Oxide Thin Films Deposited by Plasma Enhanced Atomic Layer Deposition, ***Vivek Beladiya,*** *A Szeghalmi,* Friedrich Schiller University, Germany	
3:15pm	**AF2-MoA-8** Study of the Surface Species During Thermal and Plasma-Enhanced Atomic Layer Deposition of Titanium Oxide Films using In-situ IR-Spectroscopy and Iin Vacuo X-ray Photoelectron Spectroscopy, ***Sofie Vandenbroucke,*** Ghent University - IMEC, Belgium; *E Levrau, M Minjauw, M Van Daele,* Ghent University, Belgium; *E Solano,* Ghent University, Belgium, Spain; *R Vos,* IMEC, Belgium; *J Dendooven, C Detavernier,* Ghent University, Belgium	
3:30pm	**Break & Exhibits**	
3:45pm	**Break & Exhibits**	
4:00pm	**INVITED: AF3-MoA-11** As Deposited Epitaxial Functional Complex Oxides - Enabling Novel Technology, ***Henrik H. Sønsteby,*** University of Oslo, Norway	**ALD Fundamentals** **Session AF3-MoA** **ALD Growth and Surface Chemistry** **Moderators:** Christian Dussarat, Air Liquide Laboratories, Simon D. Elliott, Schrödinger
4:15pm	Invited talk continues.	
4:30pm		
4:45pm	**AF3-MoA-14** RT Atomic Layer Deposition of Aluminum Silicate and its Application to Ion Sorption Surfaces, *Y Mori, T Saito, K Saito, K Yoshida, M Miura, K Kanomata, B Ahmmad, S Kubota,* ***Fumihiko Hirose,*** Yamagata University, Japan	
5:00pm	**AF3-MoA-15** Nucleation and Growth of Thermal ALD Au Films - Towards Coalescence of Ultrathin Films, ***Virginia Wheeler,*** *B Greenberg, N Nepal, J Avila, B Feigelson,* U.S. Naval Research Laboratory	
5:15pm	**AF3-MoA-16** ABC-Type Pulsing for Improved ALD of Group 13 Nitrides using Trialkyl Metal Precursors, ***Henrik Pedersen,*** *P Rouf, P Deminskyi,* Linköping University, Sweden; *T Törndahl,* Uppsala University, Sweden; *L Ojamäe,* Linköping University, Sweden	
5:30pm	**AF3-MoA-17** Atomic Layer Deposition of Metal Thin Film using Discrete Feeding Method (DFM) and Electric Field/Potential Assisted-Atomic Layer Deposition (EA-ALD), ***Ji Won Han,*** *T Park,* Hanyang University, Republic of Korea; *H Jin,* SK Hynix Inc, Republic of Korea; *Y Kim,* Hanyang University, Republic of Korea	

Monday Afternoon, June 29, 2020

	Room Van Rysselberghe	
1:30pm		**ALD Applications** **Session AA1-MoA** **Emerging Applications of ALD I & II** **Moderators:** Hyeontag Jeon, Hanyang University, Viljami Pore, ASM
1:45pm	**AA1-MoA-2** Resistive Switching Maps for Films of Variable Conductivity Grown by Atomic Layer Deposition, ***Kaupo Kukli,*** University of Tartu, Estonia; *M Kemell,* University of Helsinki, Finland; *H Castán, S Dueñas,* University of Valladolid, Spain; *M Heikkilä,* University of Helsinki, Finland; *J Kozlova, M Rähn,* University of Tartu, Estonia; *M Ritala, M Leskelä,* University of Helsinki, Finland	
2:00pm		
2:15pm		
2:30pm		
2:45pm		
3:00pm	**AA1-MoA-7** Understanding and Controlling Release and Aerosolization of Inhaled Drug Particles Engineered by Atomic Layer Deposition, *D La Zara, F Sun, F Zhang,* Delft University of Technology, Netherlands; *M Quayle, G Petersson, S Folestad,* AstraZeneca, Sweden; ***Ruud van Ommen,*** Delft University of Technology, Netherlands	
3:15pm	**AA1-MoA-8** In-vitro Screening of Materials and Laminates by Atomic Layer Deposition for Medical Device Coatings, *R Ritasalo,* Picosun Oy, Finland; *O Ylivaara,* VTT Technical Research Centre of Finland Ltd, Finland; *T Sillanpää, P Holmlund, A Kärkkäinen,* VTT Technical Research Centre of Finland, Finland; ***Tom Blomberg,*** Picosun Oy, Finland	
3:30pm	**Break & Exhibits**	
3:45pm	**Break & Exhibits**	
4:00pm	**AA1-MoA-11** ALD and PE-ALD of High-Mobility Zinc-Tin-Oxide Semiconductor Layers: Towards Printable Electronic Devices, *T Cho, C Allemang, N Farjam, O Trejo, S Ravan, R Rodríguez, K Barton, R Peterson,* ***Neil Dasgupta,*** University of Michigan	
4:15pm	**AA1-MoA-12** Optimized Schottky Junctions by Atomic Layer Deposition for Piezotronic MEMS Strain Microsensors, ***Raoul Joly,*** *S Girod, N Adjeroud, M El Hachemi, P Grysan, T Nguyen, K Menguelti, S Klein, J Polesel,* Luxembourg Institute of Science and Technology, Luxembourg	
4:30pm		
4:45pm	**AA1-MoA-14** Embedded Organics in Crystalline Fluorides: A One-Step Approach to Sensitized Luminescence, ***Per-Anders Hansen,*** University of Oslo, Norway; *T Zikmund,* Academy of Sciences of the Czech Republic, Czech Republic; *T Yu,* Utrecht University, Netherlands; *J Nitsche Kvalvik, T Aarholt, Ø Prytz,* University of Oslo, Norway; *A Meijerink,* Utrecht University, Netherlands; *O Nilsen,* University of Oslo, Norway	
5:00pm	**AA1-MoA-15** Atomic Layer Deposition of ZnO Quantum Dots for Optoelectronics, ***Jin Li,*** Ghent University, Belgium; *Y Yu, X Bi,* Beihang University, China	

ALD Fundamentals
Room Arteveldeforum & Pedro de Gante - Session AF-MoP
ALD Fundamentals Poster Session
5:45pm

AF-MoP-2 A Novel Approach to Evaluate LEIS Data of 2D SnS_2 to Quantify the First and Second Atomic Layer Coverage, *P Brüner,* IONTOF GmbH, Germany*; M Mattinen, M Ritala,* University of Helsinki, Finland*;* ***Thomas Grehl,*** IONTOF GmbH, Germany

AF-MoP-3 The Structure and Properties of Titanium Nitride Layers Grown by Plasma Enhanced Atomic Layer Deposition on Different Substrates, ***Valentina Korchnoy,*** Technion - Israel Institute of Technology, Israel*; I Krylov,* Tower Semiconductor Ltd., Israel*; X Xu, Y Qi, K Weinfeld, M Eizenberg, D Ritter,* Technion - Israel Institute of Technology, Israel

AF-MoP-4 Novel Slenium ALD Precursors, ***Jaroslav Charvot,*** *D Pokorný, F Bureš, R Zazpe, J Macák,* University of Pardubice, Czech Republic

AF-MoP-11 Atomic Layer-Deposited Superconducting Niobium Nitride for Quantum Device Applications, *E Knehr,* Institute of Micro- and Nanoelectronic Systems, Karlsruhe Institute of Technology, Germany*;* ***Mario Ziegler,*** *S Linzen,* Leibniz Institute for Photonic Technologies Jena, Germany*; A Kuzmin, K Ilin,* Institute of Micro- and Nanoelectronic Systems, Karlsruhe Institute of Technology, Germany*; R Stolz, E Ilichev, H Schmidt, M Siegel,* Leibniz Institute for Photonic Technologies Jena, Germany

AF-MoP-12 Carbenes Can Make a CVD Process into an ALD Process by Surface Passivation, ***Aya Kadri,*** *M Griffiths,* Carleton University, Canada*; J Masuda,* Saint Mary's University, Canada*; S Barry,* Carleton University, Canada

AF-MoP-14 High Wet Etch Resistance SiO_2 Films Deposited by Plasma-Enhanced Atomic Layer Deposition using 1,1,1-Tris(Dimethylamino)Disilane, ***Su Min Hwang,*** University of Texas at Dallas*; H Kim, Z Qin,* The University of Texas at Dallas*; A Ravichandran,* University of Texas at Dallas*; J Lee,* The University of Texas at Dallas*; Y Jung,* University of Texas at Dallas*; S Kim,* Kangwon National University, Republic of Korea*; J Ahn,* Hanyang University, Republic of Korea*; B Hwang, L Lee, X Zhou,* DuPont*; J Kim,* University of Texas at Dallas

AF-MoP-15 Applying a Figure of Merit to Known Copper Precursors, ***Atilla Varga,*** *M Griffiths,* Carleton University, Canada*; J Masuda,* Saint Mary's University, Canada*; S Barry,* Carleton University, Canada

AF-MoP-16 Conformality in Aluminum Oxide ALD Process Analyzed using the 3rd-Generation Silicon-Based Lateral High-Aspect-Ratio Test Structures, ***Jihong Yim,*** Aalto University, Finland*; O Ylivaara,* VTT Technical Research Centre of Finland Ltd, Finland*; M Ylilammi, V Korpelainen,* VTT Technical Research Centre of Finland, Finland*; E Haimi, E Verkama,* Aalto University, Finland*; M Utriainen,* VTT Technical Research Centre of Finland, Finland*; R Puurunen,* Aalto University, Finland

AF-MoP-17 Growth and Characterization of Aluminum Nitride using TMA, and NH_3 by Atomic Layer Deposition, *Y Lin, C Kei,* ***Chan-Yuen Chang,*** *C Yang, C Chen,* National Applied Research Laboratories, Republic of China

AF-MoP-18 Thermal SiN_x Using NH_3 and Anhydrous Hydrazine as Nitriding Agents, *S Hwang,* ***Dan Le,*** *A Ravichandran, A Kondusamy,* University of Texas at Dallas*; D Alvarez, J Spiegelman,* RASIRC*; J Kim,* University of Texas at Dallas

AF-MoP-19 Observation of Transient Response of Langasite Crystal Microbalance (LCM) at High Temperature, ***Masafumi Kumano,*** Tohoku University, Japan*; K Hikichi,* Technofine Co. Ltd, Japan*; M Omote,* XMAT Corporation, Japan*; Y Ohashi, A Yoshikawa, S Tanaka,* Tohoku University, Japan

AF-MoP-20 Atomic Layer Deposition of Niobium Nitride Thin Film with $NbCl_5$ and NH_3, ***Moo-Sung Kim,*** *S Lee,* Merck Performance Materials Ltd. Korea, Republic of Korea*; S Ivanov,* Versum Materials, Inc

AF-MoP-21 Atomic Layer Deposition of Vanadium Oxides using Vanadyl Acetylacetonate as Precursor, *P Juan,* Ming Chi University of Technology, Republic of China*;* ***Wen-Hao Cho,*** National Applied Research Laboratories, Republic of China*; C Kuo,* National Central University, Republic of China*; G Li,* Ming Chi University of Technology, Republic of China*; C Chen, C Yang, C Kei,* National Applied Research Laboratories, Republic of China

AF-MoP-26 Density Functional Theory Study on the Reducing Agent for Atomic Layer Deposition of Tungsten using Tungsten Chloride Precursor, *R Hidayat,* ***Yewon Kim,*** *T Chowdhury,* Sejong University, Republic of Korea*; S Kim,* Yeungnam University, Republic of Korea*; W Lee,* Sejong University, Republic of Korea

AF-MoP-27 Density Functional Theory Study on the Surface Reaction of the Hafnium Precursor with a Linked Amido-Cyclopentadienyl Ligand, ***Romel Hidayat,*** *H Kim,* Sejong University, Republic of Korea*; H Kim, Y Byun, J Lee,* Mecaro, Republic of Korea*; W Lee,* Sejong University, Republic of Korea

AF-MoP-28 Crystallized ZnO Room-Temperature Atomic Layer Deposition and its Application, ***Kazuki Yoshida,*** *K Saito, M Miura, K Kanomata, B Ahmmad, S Kubota, F Hirose,* Yamagata University, Japan

AF-MoP-30 Modelling of Low-Temperature Atomic Layer Deposition of Silicon Nitride using Plasma Excited Ammonia, ***Kentaro Saito,*** *K Yoshida, M Miura, K Kanomata, B Ahmmad, S Kubota, F Hirose,* Yamagata University, Japan

AF-MoP-33 Investigating the Reaction Chemistry of Atomic Layer Deposited SnOx on Perovskite using In-situ Quartz Crystal Microbalance, ***Adam Hultqvist,*** *J Jacobsson, S Svanström, T Törndahl,* Uppsala University, Sweden*; U Cappel,* Royal Institute of Technology, Sweden*; H Rensmo, E Johansson, G Boschloo, M Edoff,* Uppsala University, Sweden

AF-MoP-34 Development of Indium Precursors for Deposition of Indium Oxide, ***Takashi Ono,*** *K Yamamoto, S Kamimura, C Dussarrat,* Air Liquide Laboratories, Japan

AF-MoP-36 Studying the Co-Reactant Role During Plasma-Enhanced Atomic Layer Deposition of Palladium, ***Ji-Yu Feng,*** *M Minjauw, R Ramachandran, M Van Daele, H Poelman,* Ghent University, Belgium*; T Sajavaara,* University of Jyväskylä, Finland*; J Dendooven, C Detavernier,* Ghent University, Belgium

AF-MoP-37 Plasma Enhanced Atomic Layer Deposition of Carbon Incorporated Silicon Oxynitride (SiON) Thin Films Using Novel Organochlorodisiloxane Precursors, *Z Qin,* The University of Texas at Dallas*; S Hwang, A Ravichandran,* ***Dan Le,*** *Y Jung,* University of Texas at Dallas*; B Hwang, L Lee, X Zhou,* DuPont*; J Kim,* University of Texas at Dallas

AF-MoP-40 Reactive Ballistic Transport in Horizontal Macrotrenches Under ALD and CVD Conditions: A Comparison with Vertical Structures, ***Angel Yanguas-Gil,*** Argonne National Laboratory

AF-MoP-44 Understanding the Influence of *In-situ* Ar-Plasma Annealing Processes on the Film Properties of ALD-Grown AlN Layers, ***Saidjafarzoda Ilhom,*** *A Mohammad, D Shukla, J Grasso, B Willis,* University of Connecticut*; A Okyay,* Stanford University*; N Biyikli,* University of Connecticut

AF-MoP-45 Thin-Film Deposition from $Mo(CO)_6$: The Effect of Co-Reactants and Temperature on Film Purity, ***Phillip Chen,*** *S Nguyen, B Hendrix, T Baum,* Entegris, Inc.

AF-MoP-46 Feasibility of Boron Nitride Film Growth at Lower-than 250°C Substrate Temperature via Hollow-Cathode Plasma-ALD: In-situ Monitoring of Plasma Composition Effect, ***Adnan Mohammad,*** *D Shukla, S Ilhom, B Willis, J Grasso,* University of Connecticut*; A Okyay,* OkayayTech*; N Biyikli,* University of Connecticut

AF-MoP-47 Ti-Doped ZnO Thin Films by Atomic Layer Deposition: Growth Mechanism Study and Influence of Process Parameters on Material Properties, ***Damien Coutancier,*** IPVF-CNRS, France*; O Fournier,* IPVF-EDF, France*; S Zhang,* IPVF-CNRS, France*; S Bernardini,* IPVF-Total, France*; F Donsanti,* IPVF-EDF, France*; N Schneider,* IPVF-CNRS, France

AF-MoP-48 Effect of Deposition Temperature on Titanium Nitride in Plasma-Enhanced Atomic Layer, ***Heli Seppänen,*** *E Österlund, H Lipsanen,* Aalto University, Finland

AF-MoP-50 Infrared Spectroscopy of SiNx Grown by Atomic Layer Deposition on Structured Substrates, ***Yuji Otsuki,*** *Y Suzuki, M Kagaya, K Oshimo, H Murakami, K Ouchi,* Tokyo Electron Technology Solutions Limited, Japan

AF-MoP-51 Enabling Strong Magnetoelectric 2-2 Composites Made of AlN Films Grown by Plasma-Enhanced ALD on Magnetostrictive Foils for Energy Harvesting Applications, ***Tai Nguyen,*** *N Adjeroud, S Glinsek, Y Fleming, J Guillot, J Polesel-Maris,* Luxembourg Institute of Science and Technology, Luxembourg

AF-MoP-53 On the Fundamentals of ALD: The Importance of Getting the Picture Right, ***Riikka Puurunen,*** Aalto University, Finland*; R van Ommen,* Delft University of Technology, Netherlands

AF-MoP-59 In-situ Real-Time and Ex-situ Spectroscopic Analysis of Al_2O_3 Films Prepared by PEALD, ***Paul Plate,*** *F Naumann, J Reck, H Gargouri, B Gruska, A Blümich,* SENTECH Instruments GmbH, Germany*; A Mahmoodinezhad, C Janowitz, K Henkel, J Flege,* BTU Cottbus-Senftenberg, Germany

AF-MoP-60 Conformality of TMA/H_2O and TMA/O_3 Processes Evaluated using Lateral High-Aspect-Ratio Structures, ***Sakari Lepikko,*** Aalto University, Finland*; O Ylivaara,* VTT Technical Research Centre of Finland Ltd, Finland*; J Yim, E Verkama,* Aalto University, Finland*; M Utriainen,* VTT Technical Research Centre of Finland, Finland*; R Puurunen, R Ras,* Aalto University, Finland

AF-MoP-62 Atomic Layer Modulation using Steric Hindrance of Precursors, *H Lee,* ***Chi Thang Nguyen,*** Incheon National University, Republic of Korea

AF-MoP-63 Tungsten Films Grown by Plasma-Enhanced Atomic Layer Deposition with Newly Synthesized Metalorganic and Halide Precursor, ***Yujin Lee,*** *S Seo, T Nam, H Lee, H Yoon, S Lee,* Yonsei University, Republic of Korea*; J Seo, J Seok,* Hansol Chemical, Republic of Korea*; H Kim,* Yonsei University, Republic of Korea

AF-MoP-64 Metal Aminoalkoxide Precursors for ALD Metal Oxide Films, ***Atsushi Sakurai,*** *H Sato,* Adeka Corporation, Japan*; A Saito,* Adeka Corporation, Republic of Korea*; M Hatase, A Nishida, T Yoshino, M Enzu, N Okada, A Yamashita,* Adeka Corporation, Japan

AF-MoP-65 Surface Reaction Mechanism during Atomic Layer Deposition of Al_2O_3 using Water, Methanol, and Ethanol as the Oxidants, *H Kim,* ***Seunggi Seo,*** *W Woo, I Oh,* Yonsei University, Republic of Korea*; B Shong,* Hongik University, Republic of Korea

AF-MoP-66 Evaluation and Investigation on Reaction Mechanism of Novel Hf Alkoxide Precursors for Atomic Layer Deposition of HfO_2, *H Kim,* ***Hwi Yoon,*** Yonsei University, Republic of Korea*; G Lee,* Korea Research Institute of Chemical Technology, Republic of Korea*; Y Lee, S Seo, S Lee,* Yonsei University, Republic of Korea*; T Chung,* Korea Research Institute of Chemical Technology, Republic of Korea

AF-MoP-67 Phase-Induced Surface Free Energy Control of Plasma Enhanced Atomic Layer Deposition HfO_2 Thin Films, *H Kim,* ***Sangyoon Lee,*** *H Yoon, S Lee,* Yonsei University, Republic of Korea

AF-MoP-69 Room Temperature ALD using High-Purity Ozone Gas, ***Naoto Kameda,*** *T Hagiwara, A Abe, T Miura, Y Morikawa, M Kekura,* Meidensha Corporation, Japan*; K Nakamura, H Nonaka,* AIST, Japan

AF-MoP-70 Atomic Layer Deposition of Zinc Oxide Thin Films using a Liquid Cyclopentadienyl-Based Precursor, bis(n-propyltetramethylcyclopentadienyl)Zinc, ***Fumikazu Mizutani,*** *S Higashi, N Takahashi,* Kojundo Chemical Laboratory Co., Ltd., Japan*; M Inoue, T Nabatame,* National Institute for Materials Science, Japan

AF-MoP-71 High Volatility Precursors for ALD Process of Rare Earth Oxides, ***Nana Okada,*** *A Yamashita, M Hatase, A Nishida, C Mitsui, A Sakurai,* ADEKA Corporation, Japan

AF-MoP-74 Atomic Layer Deposition of Yttrium Oxide Films and their Properties of Water Wettability, ***Bo Zhao,*** *F Mattelaer, G Rampelberg, J Dendooven, C Detavernier,* Ghent University, Belgium

AF-MoP-75 Hollow-Cathode Plasma-Assisted Atomic Layer Deposition of III-Nitrides: How the Substrate and Plasma Chemistry Impacts the Raman Spectroscopy Analysis of GaN and InN Thin Films, *M Alevli, N Gungor,* Marmara University, Turkey*; S Ilhom, A Mohammad,* ***Deepa Shukla,*** *N Biyikli,* University of Connecticut

AF-MoP-76 Effect of Ligand Structure on Crystallinity of Atomic Layer Deposited Titanium Dioxide, ***Sanghun Lee,*** Yonsei University, Republic of Korea*; W Noh,* Air Liquide Laboratories Korea, Republic of Korea*; H Kim,* Yonsei University, Republic of Korea

AF-MoP-84 Homoleptic and Heteroleptic Alkoxide Precursors for Deposition of Aluminum Oxide Thin Films, ***Liao Cao,*** *F Mattelaer, G Rampelberg,* Ghent University, Belgium*; F Hashemi, R van Ommen,* Delft University of Technology, Netherlands*; M Tiitta,* VOLATEC, Finland*; J Dendooven, C Detavernier,* Ghent University, Belgium

AF-MoP-85 The Role of Steric Hindrance During Plasma Enhanced ALD of SiO_2, ***Chenhui Qu,*** *M Kushner,* University of Michigan

AF-MoP-86 Machine Learning for Atomic Layer Deposition: Process Optimization Based on Growth Profiles, ***Angel Yanguas-Gil,*** *J Elam,* Argonne National Laboratory

AF-MoP-90 Plasma-Enhanced ALD of as-Grown Crystalline VO_x and the Evolution of its Phase Structure via Critically Tuned Post-Deposition Annealing Process, ***Adnan Mohammad,*** *D Shukla, S Ilhom, K Joshi, B Willis, B Wells, N Biyikli,* University of Connecticut

AF-MoP-92 Investigating the Role of N_2 Plasma Composition on the Atomic Layer Growth of InN Films Using Hollow-Cathode Plasma Source, *S Ilhom, A Mohammad, D Shukla, J Grasso, B Willis,* University of Connecticut*; A Okyay,* Stanford University*;* ***Necmi Biyikli,*** University of Connecticut

AF-MoP-93 As-Grown Crystalline β-Ga_2O_3 Films via Plasma-Enhanced ALD at Low Substrate Temperatures, ***Saidjafarzoda Ilhom,*** *A Mohammad, D Shukla, J Grasso, B Willis,* University of Connecticut*; A Okyay,* Stanford University*; N Biyikli,* University of Connecticut

AF-MoP-94 Aluminum Oxide ALD with Hydrogen Peroxide: Comparative Study of Growth and Film Characteristics for Anhydrous H_2O_2, H_2O_2/H_2O Mixtures, H_2O and Ozone, *J Spiegelman,* ***Dan Alvarez,*** RASIRC*; K Andachi, G Tsuchibuchi, K Suzuki,* Taiyo Nippon Sanso Corporation, Japan

AF-MoP-95 Indium Aluminum Nitride Growth Kinetics and Crystallinity Studied Using *In Situ* and *Ex Situ* Synchrotron X-ray Scattering, ***Jeffrey Woodward,*** ASEE*; S Rosenberg,* Sandia National Laboratories*; S Johnson,* U.S. Naval Research Laboratory*; Z Robinson,* SUNY College at Brockport*; N Nepal,* U.S. Naval Research Laboratory*; K Ludwig,* Boston University*; C Eddy, Jr.,* U.S. Naval Research Laboratory

AF-MoP-96 Potential of Guanidinate and Amidinate Gallium Complexes as Precursors for Atomic Layer Deposition, *N Schneider,* ***Paul-Alexis Pavard,*** CNRS-IPVF, France*; S Bellemin-Laponnaz,* CNRS, France*; C Gosmini,* École Polytechnique CNRS, France*; D Lincot,* CNRS-IPVF, France*; A Auffrant,* École Polytechnique CNRS, France

Atomic Layer Etching
Room Arteveldeforum & Pedro de Gante - Session ALE-MoP
Atomic Layer Etching Poster Session
5:45pm

ALE-MoP-3 Density Functional Theory Study on the Reactions of Fluorine-Containing Molecules on Silicon Nitride Surface, ***Tanzia Chowdhury,*** *R Hidayat, H Kim,* Sejong University, Republic of Korea*; T Mayangsari,* Universitas Pertamina, Indonesia*; S Park,* Wonik IPS, Republic of Korea*; J Jung, W Lee,* Sejong University, Republic of Korea

ALD for Manufacturing
Room Arteveldeforum & Pedro de Gante - Session AM-MoP
ALD for Manufacturing Poster Session
5:45pm

AM-MoP-1 Comparative Study of ALD Barrier Oxides for Moisture Barrier Applications in LED Manufacturing, ***Sebastian Taeger,*** *M Mandl,* OSRAM Opto Semiconductors GmbH, Germany*; R Ritasalo, T Pilvi,* Picosun Oy, Finland*; R Tomasiunas, I Reklaitis,* Vilnius University, Lithuania

AM-MoP-3 Advanced 3D Particle Functionalization using Self-Limiting Reactions in Fluidized Bed Reactor Technology, ***Didier Arl,*** *T Da Cunha, A Maulu, N Adjeroud, K Menguelti, M Gerard, D Lenoble,* Luxembourg Institute of Science and Technology, Luxembourg

AM-MoP-5 Wafer Scale Conformality using Lateral High Aspect Ratio Test Structures, ***Oili M.E. Ylivaara,*** *F Gao,* VTT Technical Research Centre of Finland Ltd, Finland*; R Puurunen,* Aalto University, Finland*; M Utriainen,* VTT Technical Research Centre of Finland, Finland

AM-MoP-6 P-Type Semiconductor Cu_2O Deposited via Atmospheric Pressure Spatial Atomic Layer Deposition: A Step Towards Low-Cost Photovoltaic Solar Harvesters, ***Abderrahime Sekkat,*** *D Bellet,* Grenoble INP/CNRS, France*; A Kaminski-Cachopo,* IMEP-LaHC, France*; G Chichignoud,* SIMAP, France*; D Muñoz-Rojas,* Grenoble INP/CNRS, France

Emerging Materials
Room Arteveldeforum & Pedro de Gante - Session EM-MoP
Emerging Materials Poster Session
5:45pm

EM-MoP-5 First Principles Modelling of Growth of Hybrid Organic-Inorganic Films, ***Arbresha Muriqi,*** *M Nolan,* Tyndall National Institute, Ireland

EM-MoP-7 Thermal Atomic Layer Deposition of Aluminum Nitride using a Liquid Aluminum Dihydride Complex and Ammonia, *J Choi, D Ma, J Kim,* UP Chemical Co., Ltd., Republic of Korea*; T Chowdhury, R Hidayat, H Kim, W Lee,* Sejong University, Republic of Korea*;* ***Wonyong Koh,*** UP Chemical Co., Ltd., Republic of Korea

EM-MoP-9 Quinizarin: A Large Aromatic Molecule Ideal for Atomic Layer Deposition, ***Per-Anders Hansen,*** *O Nilsen,* University of Oslo, Norway

EM-MoP-10 Superconducting and Insulating Nitride-Based Thin Films Deposited by Plasma Enhanced Atomic Layer Deposition, *I Gonzales Diaz-Palacio, L Ehmcke,* Universität Hamburg, Germany*; K Furlan,* Technische Universität Hamburg, Germany*; M Wenskat, W Hillert, R Blick,* ***Robert Zierold,*** Universität Hamburg, Germany

EM-MoP-15 Low Temperature Thermal a-SiC Deposition Using Pulse CVD and ALD, ***Susumu Yamauchi,*** *M Fujikawa,* Tokyo Electron Technology Solutions Limited, Japan*; T Miyahara,* TEL Technology Center, America, LLC

EM-MoP-16 Novel Approach for Conformal Chemical Vapor Phase Deposition of Ultra-Thin Conductive Silver Films, ***Sabrina Wack,*** *P Lunca Popa, N Adjeroud, R Leturcq,* Luxembourg Institute of Science and Technology, Luxembourg

EM-MoP-17 When ALD Outperforms MOCVD: Direct Comparison of Epitaxial InN Films, ***Chih-Wei Hsu**, P Deminskyi, I Martinovic, J Palisaitis, H Pedersen,* Linköping University, Sweden

EM-MoP-19 Solution-Based ALD Routes Towards Thin Films of Organic-Inorganic Hybrid Perovskites, ***Vanessa Koch**, M Barr, P Büttner, I Mínguez-Bacho, D Döhler, J Bachmann,* Friedrich-Alexander-University Erlangen-Nürnberg, Germany

EM-MoP-21 Development of ALD Copper Oxide and Al:Cu_xO Films, *J Avila, C Eddy, Jr., **Virginia Wheeler**,* U.S. Naval Research Laboratory

EM-MoP-23 Photoactive Hybrid Thin Films by Molecular Layer Deposition, ***Melania Rogowska**, P Hansen,* University of Oslo, Norway*; H Valen,* Nordic Institute of Dental Materials, Norway*; O Nilsen,* University of Oslo, Norway

EM-MoP-24 Inducing Conductivity into Parylene C by Vapor Phase Infiltration of In_2O_3, ***Oksana Iurkevich**, E Modin,* CIC nanoGUNE BRTA, Spain*; I Šarić, R Peter, M Petravić,* University of Rijeka, Croatia*; M Knez,* CIC nanoGUNE BRTA, Spain

EM-MoP-26 Solution Atomic Layer Deposition of Cu-BDC SURMOF Thin Films, ***Maïssa K. S. Barr**, S Nadiri,* Friedrich-Alexander University of Erlangen-Nürnberg, Germany*; D Chen, P Weidler,* Karlsruhe Institute of Technology, Germany*; H Baumgart,* Old Dominion University*; J Bachmann,* Friedrich-Alexander-University Erlangen-Nürnberg, Germany*; E Redel,* Karlsruhe Institute of Technology, Germany

EM-MoP-29 ALD-Grown Gallium Oxide Thin Films with Properties Close to Bulk Wafers, ***Elham Rafie Borujeny**, K Cadien,* University of Alberta, Canada

EM-MoP-30 Crystalline GaN Film Growth at a Thermal Budget Approaching 100°C Using Hollow-Cathode Plasma-Assisted Atomic Layer Deposition, ***Deepa Shukla**, A Mohammad, S Ilhom, N Biyikli,* University of Connecticut

Room Auditorium

ALD Applications
Session AA-TuM
ALD for Solar Energy Materials I & II
Moderators: Han-Bo-Ram Lee, Incheon National University, Wei-Min Li, Jiangsu Leadmicro Nano-Equipment Technology Ltd.

8:30am **INVITED: AA-TuM-1** Atomic Layer Deposition Enabling Higher Efficiency Solar Cells, ***Bram Hoex,*** University of New South Wales, Australia

8:45am Invited talk continues.

9:00am

9:15am

9:30am

9:45am **AA-TuM-6** Atomic Layer Deposition of $Zn_{1-x}Mg_xO$ and $Zn_{1-x}Mg_xO$: Al as Transparent Conducting Films for Chalcopyrite Solar Cells, ***Poorani Gnanasambandan,*** *R Leturcq, P Lunca-Popa,* Luxembourg Institute of Science and Technology, Luxembourg*; M Sood, S Siebentritt,* Université du Luxembourg, Luxembourg

10:00am **INVITED: AA-TuM-7** Tuning Properties of ALD Oxide and Sulfide Materials for Photovoltaic Applications, ***Nathanaelle Schneider,*** IPVF-CNRS, France

10:15am Invited talk continues.

10:30am **AA-TuM-9** Solar Cells Based on Phase-Pure Sb_2S_3 by Atomic Layer Deposition Forming Planar and Coaxial Heterojunctions, ***Ignacio Minguez Bacho,*** *P Büttner, F Scheler, D Döhler,* Friedrich-Alexander-University Erlangen-Nürnberg, Germany*; C Pointer, E Young,* Lehigh University*; J Bachmann,* Friedrich-Alexander-University Erlangen-Nürnberg, Germany

10:45am **AA-TuM-10** Metal Oxide Infilling of Quantum Dot Thin Films: Charge Separation, Stabilization, and Solar Cell Formation, ***Fatemeh Hashemi,*** *R Crisp, J Alkemade, G Grimaldi, N Kirkwood, L Siebbeles, J van Ommen, A Houtepen,* Delft University of Technology, Netherlands

11:00am **AA-TuM-11** ALD of Al_2O3 on Perovskite Solar Cells: Role of Active Interfacial Engineering, *S Ghosh, N Mahuli,* ***Shaibal Sarkar,*** Indian Institute of Technology Bombay, India

Room Baekeland

8:30am

Atomic Layer Etching
Session ALE1-TuM
ALE Selectivity and Anisotropy
Moderators: Ankur Agarwal, KLA-Tencor, Sumit Agarwal, Colorado School of Mines

8:45am

9:00am **INVITED: ALE1-TuM-3** Highly Selective Atomic Layer Etching for Semiconductor Application, ***Akiko Hirata,*** Sony Semiconductor Solutions Corp., Japan

9:15am Invited talk continues.

9:30am **ALE1-TuM-5** Aspect-Ratio Dependence of Isotropic Thermal ALE and Mitigation Thereof, ***Andreas Fischer,*** *A Routzahn, T Lill,* Lam Research Corp.

9:45am **ALE1-TuM-6** Precise Ion Energy Control with Tailored Waveform Biasing for Atomic Layer Etching, ***Tahsin Faraz,*** *Y Verstappen, M Verheijen,* Eindhoven University of Technology, Netherlands; *J Lopez, E Heijdra, W van Gennip,* Prodrive Technologies B.V., Netherlands; *E Kessels, A Mackus,* Eindhoven University of Technology, Netherlands

10:00am **INVITED: ALE2-TuM-7** GaN Damage Evaluation After Conventional Plasma Etching and Anisotropic Atomic Layer Etching, ***Simon Ruel,*** *P Pimenta-Barros,* CEA-Leti, France; *N Chauvet,* Lam Research, France; *F Le Roux,* CEA-Leti, France; *S Tan,* Lam Research; *F Gaucher,* Lam Research, France; *N Posseme,* CEA-Leti, France

Atomic Layer Etching
Session ALE2-TuM
ALE for GaN Devices
Moderators: Steven M. George, University of Colorado at Boulder, Nicolas Possémé, CEA-Leti

10:15am Invited talk continues.

10:30am **ALE2-TuM-9** Analysis of Ion Energy Dependence of Depth Profile of GaN by In-situ Surface Analysis, *M Hasagawa,* ***Takayoshi Tsutsumi,*** Nagoya University, Japan; *A Tanide, S Nakamura,* SCREEN Holdings Co., Ltd., Japan; *H Kondo, K Ishikawa, M Hori,* Nagoya University, Japan

10:45am **ALE2-TuM-10** Atomic Layer GaN Etching by HBr Neutral Beam, *S Samukawa,* ***Takahiro Sawada,*** *D Ohori,* Tohoku University, Japan; *K Sugawara, M Okada, K Nakata, K Inoue,* Sumitomo Electric Industries, Ltd., Japan; *D Sato, H Kurihara,* Showa Denko K.K., Japan

Tuesday Morning, June 30, 2020

	Room Jan & Hubert Van Eyck	
8:30am		**ALD Fundamentals** **Session AF1-TuM** **ALD Mechanisms and Modeling** **Moderators:** Annelies Delabie, IMEC, Michael Nolan, University College Cork
8:45am	**AF1-TuM-2** Automated Design of Thermally Stable Heteroleptic Precursors by Computational Screening, ***Simon D. Elliott***, *D Giesen, S Kwak, M Halls,* Schrödinger, Inc.	
9:00am		
9:15am		
9:30am	**AF1-TuM-5** Unravelling the Reaction Mechanisms of Trimethyl Borate for the Atomic Layer Deposition Boron- and Hydrogen-Doped Alumina Films with Non-uniform Transversal Doping Profiles, *F Mattelaer,* ***Véronique Cremers****, M Van Daele, M Minjauw, M Nisula,* Ghent University, Belgium*; S Elliott,* Schrödinger, Inc.*; T Sajavaara,* University of Jyväskylä, Finland*; J Dendooven, C Detavernier,* Ghent University, Belgium	
9:45am		
10:00am	**AF2-TuM-7** Role of Ions in Film Conformality and Quality during Plasma-Assisted ALD of SiO_2 and TiO_2, ***Karsten Arts****, S Deijkers,* Eindhoven University of Technology, Netherlands*; M Utrianen,* VTT Technical Research Centre of Finland, Finland*; R Puurunen,* Aalto University, Finland*; E Kessels, H Knoops,* Eindhoven University of Technology, Netherlands	**ALD Fundamentals** **Session AF2-TuM** **Conformality of ALD** **Moderators:** Riikka Puurunen, Aalto University, Finland, Myung Mo Sung, Hanyang University
10:15am		
10:30am		
10:45am	**AF2-TuM-10** ALD Conformality: Effects of Process Parameters on the Simulated Saturation Profile, *E Verkama,* ***Jihong Yim****,* Aalto University, Finland*; M Ylilammi,* VTT Technical Research Centre of Finland, Finland*; R Puurunen,* Aalto University, Finland	

Tuesday Morning, June 30, 2020

	Live Session **Room Live - Session LI2-TuM** **Technical & Poster Sessions: Tuesday Live** **Moderators:** Harm C.M. Knoops, Oxford Instruments Plasma Technology, The Netherlands, Paul Poodt, Holst Centre / TNO	**ALD Applications** **Room Van Rysselberghe - Session AA2-TuM** **ALD for Batteries and Energy Storage I & II** **Moderators:** Arrelaine Dameron, Forge Nano, Neil Dasgupta, University of Michigan
8:30am		
8:45am		
9:00am		**AA2-TuM-3** Ultrathin TiN by Thermal ALD as Electrically Conducting Li-ion Diffusion Barrier for Integrated 3D Thin-Film Batteries, ***Jan Speulmanns,*** *A Kia, S Bönhardt, M Czernohorsky, W Weinreich,* Fraunhofer IPMS, Germany
9:15am		**AA2-TuM-4** Atomic Layer Deposition of Nitrogen Doped Al- and Ti-Phosphate for Li-ion Battery Applications, ***Lowie Henderick,*** Ghent University, Belgium*; H Hamed,* University of Hasselt, Belgium*; F Mattelaer, M Minjauw,* Ghent University, Belgium*; J Meersschaut,* IMEC, Belgium*; J Dendooven,* Ghent University, Belgium*; M Safari,* University of Hasselt, Belgium*; P Vereecken,* KU Leuven – University of Leuven/IMEC, Belgium*; C Detavernier,* Ghent University, Belgium
9:30am		
9:45am		**AA2-TuM-6** Passivation of Lithium Metal Anodes with ALD Aluminum Fluoride, ***John Hennessy****, J Jones, K Billings,* Jet Propulsion Laboratory
10:00am	**LI2-TuM-7** Welcome and Introduction, *C Detavernier, J Dendooven,* Ghent University, Belgium*;* ***Paul Poodt,*** TNO/Holst Center, Netherlands*; E Kessels,* Eindhoven University of Technology, Netherlands*; H Knoops,* Oxford Instruments Plasma Technology, Netherlands*; J de Marneffe,* IMEC, Belgium	
10:15am	**INVITED: LI2-TuM-8** Thermal Atomic Layer Deposition of Noble Metal Films Using Non-Oxidative Coreactants, ***Charles H. Winter,*** Wayne State University	**AA2-TuM-8** Next-Generation Li-ion Batteries Enabled by Large-Area Atmospheric-Pressure Spatial Atomic Layer Deposition, ***Mahmoud Ameen****, I Beeker, L Haverkate, B Anothumakkool, F Grob, D Hermes, N Huijssen, S Khandan Del, F Roozeboom, S Unnikrishnan,* TNO/Holst Center, Netherlands
10:30am	Invited talk continues.	**AA2-TuM-9** ALD Al_2O_3 and MoS_2 Coated TiO_2 Nanotube Layers as Anodes for Lithium Ion Batteries, *H Sopha,* University of Pardubice, Czech Republic*; A Tesfaye,* Ecole de Mine, France*; R Zazpe,* University of Pardubice, Czech Republic*; T Djenizian,* Ecole de Mine, France*;* ***Jan Macak,*** University of Pardubice, Czech Republic
10:45am	**LI2-TuM-10** Mixing It Up: Tuning Atomic Ordering in 2-D Mo1-xWxS2 Alloys by ALD, ***Jeff Schulpen****, E Kessels, V Vandalon, A Bol,* Eindhoven University of Technology, Netherlands	**INVITED: AA2-TuM-10** Molecular Layer Deposition for Stabilization of Electrochemical Materials, ***Chunmei Ban,*** University of Colorado - Boulder
11:00am	**LI2-TuM-11** Deposition of Conductive PEDOT Thin Films with EDOT and $ReCl_5$ Precursors, ***Saba Ghafourisaleh****, G Popov, M Leskelä, M Putkonen, M Ritala,* University of Helsinki, Finland	Invited talk continues.
11:15am	**Break**	**Break**
11:30am	**LI2-TuM-13** Resistless Lithography Based on Local Surface Modification of Halogenated Amorphous Carbon, ***Mikhail Krishtab,*** KU Leuven/Imec, Belgium*; T Kulmala, E Cagin,* Heidelberg Instruments Nano, Switzerland*; S Armini,* Imec, Belgium*; S De Gendt,* KU Leuven/Imec, Belgium*; R Ameloot,* KU Leuven, Belgium	
11:45am	**LI2-TuM-14** Mimicking Chitin and Chitosan Type of Functionality with Novel Thin Films Grown by Molecular Layer Deposition, ***Karina Ashurbekova****, M Knez,* CIC nanoGUNE BRTA, Spain	
12:00pm	**LI2-TuM-15** Closing Remarks & Sponsor Thank You, *C Detavernier, J Dendooven,* Ghent University, Belgium*; P Poodt,* TNO/Holst Center, Netherlands*; E Kessels,* Eindhoven University of Technology, Netherlands*;* ***Harm C.M. Knoops,*** Oxford Instruments Plasma Technology, Netherlands*; J de Marneffe,* IMEC, Belgium	

Tuesday Afternoon, June 30, 2020

	Room Auditorium	
1:00pm	**INVITED: AM-TuA-1** Atomic Layer Deposition from Dissolved Precursors — 'solution ALD' or sALD, *M Barr,* Friedrich-Alexander University of Erlangen-Nürnberg, Germany*; V Koch,* Friedrich-Alexander-University Erlangen-Nürnberg, Germany*; S Nadiri, I Kundrata, P Büttner, C Asker,* Friedrich-Alexander University of Erlangen-Nürnberg, Germany*; E Reinhardt,* Friedrich-Alexander-University Erlangen-Nürnberg, Germany*; D Chen, P Weidler,* Karlsruhe Institute of Technology, Germany*; D Segets,* University of Duisburg-Essen, Germany*; K Fröhlich,* Institute of Electrical Engineering, SAS, Slovakia*; H Baumgart,* Old Dominion University*; E Redel,* Karlsruhe Institute of Technology, Germany*;* ***Julien Bachmann****,* Friedrich-Alexander-University Erlangen-Nürnberg, Germany	**ALD for Manufacturing** **Session AM-TuA** **Spatial, Large Area and Powder ALD I & II** **Moderators:** Jonas Sundqvist, BALD Engineering AB, Angel Yanguas-Gil, Argonne National Lab
1:15pm	Invited talk continues.	
1:30pm		
1:45pm	**AM-TuA-4** An Atomic-Layer 3D Printer, ***Ivan Kundrata****,* ATLANT 3D Nanosystems, Denmark, Germany*; M Plakhotnyuk,* ATLANT 3D Nanosystems, Denmark*; M Barr, S Tymek,* Friedrich-Alexander University of Erlangen-Nürnberg, Germany*; K Fröhlich,* Institute of Electrical Engineering, SAS, Slovakia*; J Bachmann,* Friedrich-Alexander-University Erlangen-Nürnberg, Germany	
2:00pm		
2:15pm	**AM-TuA-6** Reducing Precursor Cost in PE-ALD SiO_2 Processes*,* ***Geert Rampelberg****, V Cremers, A Werbrouck, J Dendooven, C Detavernier,* Ghent University, Belgium	
2:30pm		
2:45pm		
3:00pm	**Break**	
3:15pm	**Break**	
3:30pm	**AM-TuA-11** Plasma Enhanced Spatial ALD of Metal Thin Films at Atmospheric Pressure*,* ***Bujamin Misimi****,* University of Wuppertal, Germany*; N Boysen,* Ruhr University Bochum, Germany*; T Hasselmann, D Theirich,* University of Wuppertal, Germany*; A Devi,* Ruhr University Bochum, Germany*; T Riedl,* University of Wuppertal, Germany	
3:45pm		
4:00pm	**AM-TuA-13** Plasma Enhanced Spatial Atomic Layer Deposition of Silicon Nitride Using Di(isopropylamino)silane and N_2 Plasma*,* ***Hisashi Higuchi****,* TEL Technology Center, America, LLC*; D O'Meara,* Tokyo Electron America Inc.*; S Consiglio, H Suzuki, C Wajda, G Leusink,* TEL Technology Center, America, LLC	
4:15pm	**AM-TuA-14** Realization and *In-situ* OES Characterization of Saturated 10-100 ms Precursor Pulses in a 300 mm CCP Chamber Employing de Laval Nozzle Ring Injector for Fast ALD*, J Sundqvist,* BALD Engineering AB, Sweden*;* ***Abhishekkumar Thakur****, S Wege,* Plasway Technologies GmbH, Germany*; M Krug,* Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany	
4:30pm	**AM-TuA-15** Advanced Materials for the Next Generation: ALD a Scalable Manufacturing Process for Powders*,* ***Arrelaine Dameron****, S Moulton, J DuMont, D Lewis, T Procelli, R Tracy,* Forge Nano	

Tuesday Afternoon, June 30, 2020

	Room Baekeland	
1:00pm	**INVITED: ALE1-TuA-1** Realizing Selective Material Removal in Plasma-Based Atomic Layer Etching (ALE), ***Gottlieb Oehrlein,*** University of Maryland	**Atomic Layer Etching** **Session ALE1-TuA** **ALE of Si-based Materials** **Moderators:** Thorsten Lill, Lam Research Corporation, Tetsuya Tatsumi, Sony Semiconductor Solutions Corporation
1:15pm	Invited talk continues.	
1:30pm	**ALE1-TuA-3** Atomic Layer Etching of SiO_2 and Si_3N_4 with Fluorocarbon, Hydrofluorocarbon, Fluoroether and Fluoroalcohol Compounds, ***Yongjae Kim,*** *S Kim, H Kang, Y Lee, H Chae,* Sungkyunkwan University, Republic of Korea	
1:45pm	**ALE1-TuA-4** Strategies to Enhance the Etch Selectivity During Plasma–Assisted Atomic–Scale Etching of SiO_2 over SiN_x, ***Ryan Gasvoda,*** Colorado School of Mines*; Z Zhang, E Hudson,* Lam Research Corp.*; S Agarwal,* Colorado School of Mines	
2:00pm	**ALE1-TuA-5** Cryo-ALE of SiO_2 with C_4F_8 Physisorption: Process Understanding and Enhancement, ***Gaëlle Antoun,*** *T Tillocher, P Lefaucheux, R Dussart,* GREMI Université d'Orléans/CNRS, France*; A Girard, C Cardinaud,* IMN Université de Nantes/CNRS, France*; K Yamazaki,* Tokyo Electron Limited, Japan*; J Faguet, K Maekawa,* TEL Technology Center, America, LLC	
2:15pm		
2:30pm	**ALE1-TuA-7** Interpretation of SiO_2 Atomic Layer Etching via a Simple Analytic Model, ***Youngseok Lee,*** *I Seong, J Lee, S Lee, C Cho,* Chungnam National University, Korea*; S Kim,* Nanotech, Korea*; S You,* Chungnam National University, Korea	
2:45pm		
3:00pm	**Break**	
3:15pm	**Break**	
3:30pm		
3:45pm		
4:00pm		
4:15pm		
4:30pm	**INVITED: ALE2-TuA-15** Novel Chemistries for Layer-by-Layer Etching of 2D Semiconductor Coatings and Organic-Inorganic Hybrid Materials, ***Anil U. Mane,*** *M Young, D Choudhury, S Letourneau, A Yanguas-Gil, J Elam,* Argonne National Laboratory	**Atomic Layer Etching** **Session ALE2-TuA** **Novel ALE Techniques and Materials** **Moderators:** Satoshi Hamaguchi, Osaka University, Japan, Alok Ranjan, TEL Technology Center, America, LLC
4:45pm	Invited talk continues.	

Tuesday Afternoon, June 30, 2020

	ALD Fundamentals **Room Jan & Hubert Van Eyck - Session AF-TuA** **Characterization I & II** **Moderators:** Jiyoung Kim, University of Texas at Dallas, Jin-Seong Park, Hanyang University	**Tutorials** **Room Live - Session TU1-TuA** **Tutorial Session: Tuesday Live** **Moderators:** Christophe Detavernier, Ghent University, Belgium, Harm C.M. Knoops, Oxford Instruments Plasma Technology, The Netherlands
1:00pm		**TU1-TuA-1** Tuesday Tutorial Welcome & Sponsor Thank You, ***Christophe Detavernier,*** Ghent University, Belgium
1:15pm	**AF-TuA-2** Laterally Resolved Low Energy Ion Scattering Study of Selective ALD Model Samples, ***Philipp Brüner,*** *T Grehl,* IONTOF GmbH, Germany*; A Mameli, F Roozeboom, P Poodt,* TNO/Holst Center, Netherlands	**INVITED: TU1-TuA-2** ALD Precursor Chemistry: Synthetic Routes, Purification and Evaluation of Precursors, ***Anjana Devi,*** Ruhr University Bochum, Germany
1:30pm	**AF-TuA-3** In situ Characterization of Quantum Dot Photoluminescence during Atomic Layer Deposition: Towards Stable Cd-Free QD-Based Devices, ***Robin Petit,*** *N Zawacka, J Kuhs, P Smet, Z Hens, C Detavernier,* Ghent University, Belgium	Invited talk continues.
1:45pm	**AF-TuA-4** Capturing the Dynamic Atomic Structure in ALD Reactions with *In situ* XANES, *ab initio* Simulations, and Machine Learning, ***Orlando Trejo,*** University of Michigan*; A Dadlani,* Norwegian University of Science and Technology, Norway*; F De La Paz, S Acharya, R Kravec,* Stanford University*; D Nordlund, R Sarangi,* SLAC National Accelerator Laboratory*; F Prinz,* Stanford University*; J Torgersen,* Norwegian University of Science and Technology, Norway*; N Dasgupta,* University of Michigan	Invited talk continues.
2:00pm	**AF-TuA-5** Atomic Layer Deposition of Erbium Oxide, Erbium Fluoride and Stoichiometrically-Tunable Erbium Oxyfluoride Films, ***Neha Mahuli,*** *S George,* University of Colorado - Boulder	
2:15pm		**INVITED: TU1-TuA-6** Atomic Layer Engineering: Hardware Considerations for ALD System Design and Process Development, ***Neil Dasgupta,*** University of Michigan
2:30pm	**INVITED: AF-TuA-7** From the Noise: Measuring Atomic Structure in Amorphous Thin Films Grown by Atomic Layer Deposition, ***Matthias Young,*** University of Missouri-Columbia*; N Bedford,* University of New South Wales, Australia*; J Elam, A Yanguas-Gil, S Letourneau, M Coile, D Mandia, B Aoun,* Argonne National Laboratory*; S George, A Cavanagh,* University of Colorado - Boulder*; X He, A Jasim,* University of Missouri-Columbia*; Q Wyatt,* University of Missouri-Columbiai*; N Paranamana, T White,* University of Missouri-Columbia	Invited talk continues.
2:45pm	Invited talk continues.	Invited talk continues.
3:00pm	**Break**	**Break**
3:15pm	**Break**	**INVITED: TU1-TuA-10** ALD on High Aspect Ratio and Nanostructured Materials: from Fundamentals to Economics, ***Angel Yanguas-Gil,*** Argonne National Laboratory
3:30pm		Invited talk continues.
3:45pm		Invited talk continues.
4:00pm	**AF-TuA-13** Effects of Gas Phase Reaction Chemistry on Electronic Conductivity of ALD Grown TiO_2 Films, ***Aein Babadi,*** *P McIntyre,* Stanford University	**TU1-TuA-13** Questions & Answers, *A Devi,* Ruhr University Bochum, Germany*; N Dasgupta,* University of Michigan*; A Yanguas-Gil,* Argonne National Laboratory
4:15pm	**AF-TuA-14** *In Situ* Reflection High Energy Electron Diffraction in Atomic Layer Deposition for Monitoring the Epitaxial Transformations, *N Strandwitz,* ***Alexandra Howzen,*** Lehigh University	Talk continues.
4:30pm	**AF-TuA-15** In Situ Detection of the Reaction Heat Produced by ALD on High-Surface-Area Substrates, ***Benjamin Greenberg,*** *K Anderson, M Wolak, A Jacobs, J Wollmershauser, B Feigelson,* U.S. Naval Research Laboratory	**TU1-TuA-15** Session Over - View On Demand Presentations, *C Detavernier,* Ghent University, Belgium*;* ***Harm C.M. Knoops,*** Oxford Instruments Plasma Technology, The Netherlands, Netherlands
4:45pm		Talk continues.

Room Van Rysselberghe

ALD Applications
Session AA-TuA
ALD for Catalysis I & II
Moderators: Stacey F. Bent, Stanford University, Rong Chen, Huazhong University of Science and Technology

1:00pm	**AA-TuA-1** Design of Advanced Photocatalytic Materials by Atomic Layer Deposition (ALD), ***Syreina Alsayegh***, *M Bechelany, F Zaviska, G Lesage,* Institut Européen des Membranes, France*; A Razzouk, J Stephan,* Lebanese University, Lebanon
1:15pm	
1:30pm	**AA-TuA-3** Atomic Layer Deposition of Manganese Oxide Ultra-Fine Clusters on Titanium Dioxide Nanoparticles for Photocatalytic Hydrogen Production: Experiments & Simulations, ***Saeed Saedy***, *R Verma,* Delft University of Technology, Netherlands*; S Rhatigan,* University College Cork, Ireland*; J Liu,* Delft University of Technology, Ireland*; M Nolan,* University College Cork, Ireland*; R van Ommen,* Delft University of Technology, Netherlands
1:45pm	**AA-TuA-4** In situ Electrochemical APXPS Analysis of ALD Grown Cu Catalyst for CO_2 Reduction, *H Ali-Löytty, L Palmolahti, M Hannula,* ***Jesse Saari***, Tampere University, Finland*; K Lahtonen,* Tampere University, Finlan*; H Wang, M Soldemo, A Nilsson,* Stockholm University, Sweden*; M Valden,* Tampere University, Finland
2:00pm	
2:15pm	
2:30pm	
2:45pm	**AA-TuA-8** Atmospheric-Pressure Atomic Layer Deposited Bimetallic MCu/CeO_2 Catalysts for Enhanced Removal of CO from Fuel-Cell Hydrogen by Preferential Oxidation, *E Farmani Gheshlaghi, A Irandoust,* ***Fatemeh Gashoul***, *A Khodadadi, Y Mortazavi,* University of Tehran, Iran
3:00pm	**Break**
3:15pm	**Break**
3:30pm	**INVITED: AA-TuA-11** ALD Fabrication of BN Membranes: Environmental Applications, ***Catherine Marichy***, CNRS, France*; W Hao, C Journet, V Salles,* UNiv Lyon 1, France
3:45pm	Invited talk continues.
4:00pm	
4:15pm	**AA-TuA-14** Highly Stable and Active Catalyst for Dry Reforming of Methane via Molecular Layer Deposition Approach, ***Piyush Ingale***, *C Guan, R Kraehnert, R Naumann d'Alnoncourt, A Thomas,* Technische Universität Berlin, Germany*; F Rosowski,* BASF SE, Germany
4:30pm	**AA-TuA-15** Using ALD to Probe Support and Promoter Effects for Syngas Conversion Catalysts, *S Nathan, A Asundi,* Stanford University*; A Hoffman, A Boubnov, S Bare,* SLAC National Accelerator Laboratory*;* ***Stacey F. Bent***, Stanford University

ALD Applications
Room Arteveldeforum & Pedro de Gante - Session AA-TuP
ALD Applications Poster Session
5:30pm

AA-TuP-8 Stabilizing Red Fluoride LED Phosphors using Atomic Layer Deposition, *R Verstraete, H Rijckaert,* ***Geert Rampelberg,*** Ghent University, Belgium; *E Coetsee-Hugo, M Duvenhage, H Swart,* University of the Free State, South Africa; *P Smet, C Detavernier, D Poelman,* Ghent University, Belgium

AA-TuP-9 Modulated VO_2 Phase Change Properties by Ge Doping, ***Guandong Bai,*** *K Niang, J Robertson,* University of Cambridge, UK

AA-TuP-11 Optical Fibers with TFBGs as Sensors, ***Eden Goodwin,*** *D Mandia, S Barry,* Carleton University, Canada

AA-TuP-14 Photocatalytic Lithography with Atomic Layer Deposited TiO_2 Films to Tailor Biointerface Properties, ***Sofie Vandenbroucke,*** Ghent University - IMEC, Belgium; *F Mattelaer,* Ghent University, Belgium; *K Jans,* IMEC, Belgium; *C Detavernier,* Ghent University, Belgium; *T Stakenborg, R Vos,* IMEC, Belgium

AA-TuP-15 Enhanced Activity and Selectivity of Co-Pt/γ-Al_2O_3 Fischer-Tropsch Catalyst by Atomic Layer Deposited Al_2O_3 Overcoat, ***Laura Keskiväli,*** *P Eskelinen, N Heikkinen, M Reinikainen,* VTT Technical Research Centre of Finland, Finland; *M Putkonen,* University of Helsinki, Finland

AA-TuP-23 Ferroelectricity of Ferroelectric $Hf_xZr_{1-x}O_2$/Antiferroelectric ZrO_2 Stack Structure Fabricated by Atomic Layer Deposition, ***Takashi Onaya,*** Meiji University, Japan; *T Nabatame,* National Institute for Materials Science, Japan; *Y Jung,* University of Texas at Dallas; *H Hernandez-Arriaga,* The University of Texas at Dallas; *J Mohan,* University of Texas at Dallas; *H Kim, A Khosravi,* The University of Texas at Dallas; *N Sawamoto,* Meiji University, Japan; *C Nam, E Tsai,* Brookhaven National Laboratory; *T Nagata,* National Institute for Materials Science, Japan; *R Wallace,* The University of Texas at Dallas; *J Kim,* University of Texas at Dallas; *A Ogura,* Meiji University, Japan

AA-TuP-24 Study on Optical and Electrical Properties of Zn(O,S) Films Deposited by Atomic Layer Deposition (ALD), *N Koothan,* ***Yu-Hsuan Yu,*** *C Kei, W Cho, T Chou,* Taiwan Instrument Research Institute, Republic of China

AA-TuP-25 Atomic Layer Deposition of Highly Dispersed Manganese Oxide on Mesoporous Silicon Oxide for Selective Catalytic Reduction of Nitrogen Oxides, ***Saeed Saedy,*** Delft University of Technology, Netherlands; *D Urbanas, P Baltrėnas,* Vilnius Gediminas Technical University, Lithuania; *R van Ommen,* Delft University of Technology, Netherlands

AA-TuP-26 Effect of Deposition Temperature on the Crystallinity and Polarization of Ga-doped HfO_2 Films by Atomic Layer Deposition, ***Ju-Young Jeong,*** *H Sohn, Y Han,* Yonsei University, Republic of Korea

AA-TuP-27 Low Damage Remote Plasma ALD of Dielectric Layers on Graphene, ***Michael Powell,*** Oxford Instruments Plasma Technology, UK; *B Canto, M Otto, S Kataria,* AMO GmbH, Germany; *A O'Mahony, O Thomas,* Oxford Instruments Plasma Technology; *H Knoops,* Eindhoven University of Technology, Netherlands; *D Neumaier, M Lemme,* AMO GmbH, Germany; *R Sundaram,* Oxford Instruments Plasma Technology

AA-TuP-30 Design of Li-Containing Layers with LiHMDS, ***Andreas Werbrouck,*** *F Mattelaer, T Dobbelaere, M Minjauw,* Ghent University, Belgium; *F Munnik, J Julin,* Helmholtz-Zentrum Dresden-Rossendorf, Germany; *J Dendooven, C Detavernier,* Ghent University, Belgium

AA-TuP-32 Resistive Switching in Titanium-Aluminum-Oxide Thin Films Grown by Atomic Layer Deposition, ***Joonas Merisalu,*** *T Arroval, A Kasikov, K Kukli, A Tamm, J Aarik,* University of Tartu, Estonia

AA-TuP-34 New Hydrazine Based Precursors For Semiconductor Fabrication, ***Wolf Schorn,*** *O Briel, R Karch,* Umicore AG & Co. KG, Germany; *W Stolz,* NAsP III/V GmbH, Germany

AA-TuP-39 The Use of ALD Layers for Hermetic Encapsulation in the Development of a Flexible Implantable Micro Electrode for Neural Recording and Stimulation, ***David Schaubroeck,*** IMEC - Ghent University, Belgium; *C Li,* Ghent University - IMEC, Belgium; *R Verplancke, D Cuypers, M Cauwe, M Op de Beeck,* IMEC - Ghent University, Belgium

AA-TuP-41 The Effect of Electrode Material and Doping Concentration on Physical and Electrical Properties by Using Thermal and Plasma-Assisted Atomic Layer Deposition in Ferroelectric Zr-doped HfO_2 Dielectrics, *P Juan,* Ming Chi University of Technology, Republic of China; ***Wen-Hao Cho,*** Taiwan Instrument Research Institute, Republic of China; *C Chen,* National Applied Research Laboratories, Republic of China; *C Kei,* Taiwan Instrument Research Institute, Republic of China

AA-TuP-42 PbI_2 Growth for Solution ALD for PV Application, ***Maïssa K. S. Barr,*** *S Nadiri, C Asker,* Friedrich-Alexander University of Erlangen-Nürnberg, Germany; *K Forberich,* Friedrich-Alexander University of Erlangen-Nürnberg, i-MEET, Germany; *F Hoga, T Stubhan, H Egelhaaf,* ZAE Bayern - Erneuerbare Energien, Germany; *C Brabec,* Friedrich-Alexander University of Erlangen-Nürnberg, i-MEET, Germany; *J Bachmann,* Friedrich-Alexander-University Erlangen-Nürnberg, Germany

AA-TuP-43 A Combinatorial Approach to the Ferroelectric Properties in $Hf_xZr_{1-x}O_2$ Deposited by Atomic Layer Deposition, *J Mohan,* University of Texas at Dallas; *S Kim,* Kangwon National University, Republic of Korea; *H Hernandez-Arriga,* The University of Texas at Dallas; ***Yong Chan Jung,*** University of Texas at Dallas; *T Onaya,* Meiji University, Japan; *H Kim, N Kim, K Kim,* The University of Texas at Dallas; *A Ogura,* Meiji University, Japan; *R Choi,* Inha University, South Korea; *M Sung,* Hanyang University, Republic of Korea; *J Kim,* University of Texas at Dallas

AA-TuP-46 Structure, Morphology and Mechanical Behavior of ALD TiSiN films, ***Hae Young Kim,*** *S Chugh, A Dhamdhere, B Nie, S Rathi, N Mukherjee,* Eugenus, Inc.

AA-TuP-61 The Influence of ALD-ZnSnO Buffer Layer Process Conditions on the Characteristics of Tin Sulfide Thin Film Solar Cells, ***Jae Yu Cho,*** *J Heo,* Chonnam National University, Republic of Korea

AA-TuP-64 Innovative ALD Industrial Services, ***Joël Matthey,*** *P Steinmann, L Steinmann, B Steinmann,* Positive Coating SA, Switzerland

AA-TuP-66 Antireflection Coating on PMMA Substrates by Atomic Layer Deposition (ALD), ***Pallabi Paul,*** Friedrich Schiller University, Germany; *K Pfeiffer,* Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Germany; *A Szeghalmi,* Friedrich Schiller University, Germany

AA-TuP-68 Effect of Thermal Stability of Precursor on Electrical Properties of TiN/ZrO_2/TiN Capacitor, ***Younsoo Kim,*** *S Ryu, Y Cho,* Samsung Electronics Co., Inc., Republic of Korea; *N Yamada,* ADEKA Corporation, Japan; *J Choi, H Lim,* Samsung Electronics Co., Inc., Republic of Korea

AA-TuP-70 Mechanism of Leakage Variation with Aspect Ratio in ALD High-*k* ZrO_2 and HZO Dielectrics, ***Martin McBriarty,*** *R Clarke, S Barabash, K Littau,* Intermolecular

AA-TuP-73 Atomic Layer Deposition Zinc-Doped Alumina and Alucone at Room Temperature for Flexible and Transparent Gas Permeation Barriers, ***Shiv Bhudia,*** *S Wack, N Adjeroud, J Guillot,* Luxembourg Institute of Science and Technology, Luxembourg; *D Blondin,* Met-Lux S.a.; *R Leturcq,* Luxembourg Institute of Science and Technology, Luxembourg

AA-TuP-74 ALD Encapsulation of QD-Polymer Composite Films for Luminescent Applications, ***Natalia Zawacka,*** *R Petit, J Kuhs, P Smet, C Detavernier, Z Hens,* Ghent University, Belgium

AA-TuP-78 ALD-Grown Aluminum Oxide Coatings for Nuclear Applications, ***Boris Paladino,*** *M Vanazzi,* Italian Institute of Technology, Italy; *S Bassini, M Utili,* ENEA (Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile), Italy; *F Di Fonzo,* Italian Institute of Technology, Italy

AA-TuP-79 Atomic Layer Deposited Nitrogen Incorporated MoO_x Films: Electrical and Electrochemical Properties, ***Arpan Dhara,*** Ghent University, Belgium; *D Saha, S Mitra, S Sarkar,* Indian Institute of Technology Bombay, India

AA-TuP-82 Improvement of Thin-Film Transistor Performance in Atomic Layer Deposited SnO Film by Thermal Annealing Process, *J Lee,* ***Su-Hwan Choi,*** Hanyang University, Republic of Korea; *B Park,* EM Index, Republic of Korea; *J Sheng, J Park,* Hanyang University, Republic of Korea

AA-TuP-87 Atomic Layer Deposition Platform in Luxembourg – Review of Emerging Applications for Sensors, MEMS, Energy Harvesters, Transparent Electronics and Coated Powder for Composites, ***Noureddine Adjeroud,*** Luxembourg Institute of Science and Technology, Luxembourg

AA-TuP-89 Atomic Layer Deposited Films for Solar Cells Application, ***Karol Frohlich,*** CEMEA/Institute of Electrical Engineering, SAS, Slovakia; *M Mikolášek,* Institute of Electronics and Photonics, SUT, Slovakia; *R Subair, V Nadáždy,* Institute of Physics, SAS, Slovakia; *A Rosová, E Dobročka, M Precner,* Institute of Electrical Engineering, SAS, Slovakia; *M Jergel, E Majková,* Institute of Physics, SAS, Slovakia

AA-TuP-95 Biocompatibility of ALD Coatings on Nano- and Microstructures: Cell Viability Studies of Murine and Human Induced Stem Cell-Derived Neurons, ***Robert Zierold,*** *J Harberts, C Fendler, M Siegmund, M Schnelle, R Blick,* Universität Hamburg, Germany

AA-TuP-96 Low-Temperature PEALD of Ga_2O_3 Using TMGa and O_2 Plasma, ***Ali Mahmoodinezhad,*** *C Janowitz,* BTU Cottbus-Senftenberg, Germany; *F Naumann, P Plate, H Gargouri,* SENTECH Instruments GmbH, Germany; *K Henkel, J Flege,* BTU Cottbus-Senftenberg, Germany

AA-TuP-97 ALD Coatings on Ni-Rich NMC Cathode Materials for Long Lasting, High Energy Density Batteries, ***Jaime DuMont***, *D Lewis, M Martinez, M Herbert-Walters, S Moulton, B Hughes, A Dameron,* Forge Nano

AA-TuP-98 Lifetime, Selectivity, Stability, and Hydrothermal Improvements with ALD Overcoating for Hydrogenation and Dehydrogenation Catalysts, ***Staci Moulton***, *A Dameron, T Procelli, R Tracy,* Forge Nano

AA-TuP-100 Efficient and Flexible Dielectrics at Elevated Temperatures from Polymers Sandwiched with Wide Bandgap Inorganic Films Grown via Atomic Layer Deposition, *A Okyay,* Stanford University; *S Ilhom, C Wu, A Mohammad, D Shukla, Y Cao,* ***Necmi Biyikli,*** University of Connecticut

AA-TuP-101 On the Atomic Layer Deposition of Catalysts for Dehydrogenation of Propane with CO_2: The Study of Reaction Performance and Coke Formation, ***Fatemeh Gashoul Daresibi***, *Y Mortazavi, A Khodadadi,* University of Tehran, Iran

AA-TuP-103 Atomic Layer Deposited Al-doped TiO_x as Passivating Contacts on Silicon Solar Cells, ***Borong Sang,*** University of New South Wales, Australia; *Z Huang,* Jiangsu Ocean University, China; *M Hossain,* University of New South Wales, Australia; *A Abdallah, Y Zakaria,* QEERI, Qatar; *B Hoex,* University of New South Wales, Australia

AA-TuP-105 The Evolution of Temperature Monitoring in ALD, *J Paolino,* ***Jason Merson,*** Global Results Communications

Area Selective ALD
Room Arteveldeforum & Pedro de Gante - Session AS-TuP
Area Selective ALD Poster Session
5:30pm

AS-TuP-1 A Novel Cobalt Precursor for Area-Selective Deposition, ***Hiroyuki Oike***, *Y Yamamoto, T Hayakawa, T Furukawa, K Tokudome,* TOSOH Corporation, Japan; *K Tada,* Sagami Chemical Research Institute, Japan

AS-TuP-3 Thermally Assisted Area Selective Atomic Layer Deposition, ***Bart de Braaf***, *K Storm,* Eindhoven University of Technology, The Netherlands

AS-TuP-5 Simple Fabrication of Patterned MOF Thin Films via Area Selective Deposition of ZnO by Spatial ALD, ***Chiara Crivello***, *D Muñoz-Rojas,* LMGP Grenoble INP/CNRS, France; *V Nguyen,* Phenikaa University, Vietnam; *O Hassan,* Grenoble INP/CNRS, France

AS-TuP-7 Topographic Area Selective Deposition: A Ccomparison Between PEALD/ALE and PEALD/Sputtering Approaches, ***Moustapha Jaffal***, *T Yeghoyan, V Pesce, A Chaker, D Sylvain, G Lefevre,* LTM-UGA, France; *R Gassilloud, N Posseme,* CEA-Leti, France; *M Bonvalot,* LTM-UGA, France; *C Vallée,* CNRS LTM, France

AS-TuP-10 Molecular Rearrangement of a MLD Thin Film by Electron Beam Irradiation, ***GeonHo Baek***, *S Lee, J Lee, J Park,* Hanyang University, Republic of Korea

AS-TuP-11 Inherent Area-Selective Atomic Layer Deposition of Ruthenium Thin Film with Novel Ru Precursor, ***Hye-Mi Kim***, *J Lee, S Lee,* Hanyang University, Republic of Korea; *R Harada, T Shigetomi, S Lee,* Tanaka Kikinzoku Kogyo K.K., Japan; *B Shong,* Hongik University, Republic of Korea; *J Park,* Hanyang University, Republic of Korea; *T Tsugawa,* Tanaka Kikinzoku Kogyo K.K., Japan

AS-TuP-12 Selective Atomic Layer Deposition of Nickel on the Molybdenum Oxide Supported on γ-Al_2O_3 for Enhanced Hydrodesulphurization of Dibenzothiophene at Lower Temperatures and Pressures, *A Khodadadi, S Bahrani, Y Mortazavi,* ***Fatemeh Gashoul Daresibi,*** University of Tehran, Iran

AS-TuP-13 Area Selective Atomic Layer Deposition of Molybdenum Films on Nanoscale Metal and Metal Nitride Patterns, ***Se-Won Lee***, *M Kim,* Merck Performance Materials Ltd. Korea, Republic of Korea

AS-TuP-14 300 mm-Wafer Characterization of Ruthenium Area-Selective Deposition in Nanoscale Line-Space and Hole Patterns, ***Jan-Willem Clerix***, *A Delabie,* KU Leuven – University of Leuven/IMEC, Belgium; *J Hung,* Nova MI/IMEC, Belgium; *L Warad, K Shah,* Nova MI, Belgium

Nanostructure Synthesis and Fabrication
Room Arteveldeforum & Pedro de Gante - Session NS-TuP
Nanostructures Synthesis and Fabrication Poster Session
5:30pm

NS-TuP-7 *In situ* Thermal Annealing of ALD Fabricated Pt Nanoparticles and Their Stabilization via Al_2O_3 Overcoating, *E Solano,* NCD-SWEET beamline, ALBA Synchrotron Light Source, Spain; *J Dendooven, J Feng,* Ghent University, Belgium; *P Brüner,* IONTOF GmbH, Germany; ***Matthias Minjauw***, *R Ramachandran, M Van Daele, K Van de Kerckhove, T Dobbelaere,* Ghent University, Belgium; *A Coati,* Sychrotron SOLEIL, France; *D Hermida-Merino,* ESRF European Synchrotron Radiation Facility, France; *C Detavernier,* Ghent University, Belgium

NS-TuP-10 Surface Functionalization and Atomic Layer Deposition of Metal Oxides on MoS_2 Surfaces, ***Theodosia Gougousi***, *J Kropp, C Ataca,* University of Maryland, Baltimore County

NS-TuP-11 Comparison of Growth Characteristics and Nanoparticle Formation by O_2 or H_2 Reactant Gas in Pt ALD, ***Tatsuya Nakazawa***, *D Kim, T Nam, J Park, H Kim,* Yonsei University, Republic of Korea

Wednesday Morning, July 1, 2020

Live Session
Room Live - Session LI3-WeM
Technical & Poster Sessions: Wednesday Live
Moderators: Christophe Detavernier, Ghent University, Belgium, Jean-François de Marneffe, IMEC

8:30am		
8:45am		
9:00am		
9:15am		
9:30am		
9:45am		
10:00am	**LI3-WeM-7** Welcome & Introduction, ***Christophe Detavernier***, *J Dendooven,* Ghent University, Belgium*; P Poodt,* TNO/Holst Center, Netherlands*; E Kessels,* Eindhoven University of Technology, Netherlands*; H Knoops,* Oxford Instruments Plasma Technology, Netherlands*; J de Marneffe,* IMEC, Belgium	
10:15am	**INVITED: LI3-WeM-8** Surface Reactions Between Metals and Diketone induced by Gas Cluster Ion Bombardments, ***Noriaki Toyoda***, *K Uematsu,* University of Hyogo, Japan	
10:30am	Invited talk continues.	
10:45am	**LI3-WeM-10** ALE 2020 Best Student Paper Award Talk: Isotropic Plasma ALE of Al_2O_3 using SF_6 Plasma and TMA, ***Nicholas Chittock***, *M Vos, A Mackus,* Eindhoven University of Technology, Netherlands*; H Knoops,* Oxford Instruments Plasma Technology, Netherlands*; E Kessels,* Eindhoven University of Technology, Netherlands	
11:00am	**Break**	
11:15am	**INVITED: LI3-WeM-12** Monolayer Lithography: Exploiting Inhibition Contrast from the Extreme Ultraviolet Irradiation of Organic Monolayers for Area Selective Depositions, ***Rudy Wojtecki***, IBM Research - Almaden	
11:30am	Invited talk continues.	
11:45am	**LI3-WeM-14** Super-Conformal ALD of Metallic Mo Films by Simultaneous Deposition and Etch, ***Jean-Sebastien Lehn***, EMD Performance Materials*; C Dezelah,* ASM, Finland*; J Woodruff, R Kanjolia, D Moser, T Polson,* EMD Performance Materials	
12:00pm		
12:15pm	**LI3-WeM-16** Process Optimization in Atomic Layer Deposition Using Machine Learning, *A Yanguas-Gil, S Letourneau, A Mane, N Paulson, A Lancaster,* ***Jeffrey W. Elam***, Argonne National Laboratory	
12:30pm	**LI3-WeM-17** ALD/ALE Student Awards, Closing Remarks, & Sponsor Thank You, *C Detavernier, J Dendooven,* Ghent University, Belgium*; P Poodt,* TNO/Holst Center, Netherlands*; E Kessels,* Eindhoven University of Technology, Netherlands*; H Knoops,* Oxford Instruments Plasma Technology, Netherlands*;* ***Jean-François de Marneffe***, IMEC, Belgium	

	ALD Applications **Room Van Rysselberghe - Session AA-WeM** **ALD for Semiconductor Applications I** **Moderators:** Adrien LaVoie, Lam Research Corp., Mike McSwiney, Intel, USA	**Area Selective ALD** **Room Baekeland - Session AS-WeM** **Selective ALD I** **Moderators:** Dennis Hausmann, Lam Research, Hanjin Lim, Samsung Electronics Co., Inc.
10:45am		**AS-WeM-1** Promixity Effect of Selective Co ALD on the Nanoscale, ***Michael Breeden****, S Wolf, A Anurag, V Wang,* University of California San Diego*; D Moser, R Kanjolia, M Moinpour, J Woodruff,* EMD Performance Materials*; A Kummel,* University of California San Diego*; M Li, M Bakir,* Georgia Institute of Technology
11:00am		**AS-WeM-2** Cobalt Electron-Enhanced Atomic Layer Deposition (EE-ALD) Using High Electron Flux Hollow Cathode Plasma Electron Source (HC-PES): Rapid Growth and Bottom-Up Fill, ***Zachary Sobell****, A Cavanagh,* University of Colorado - Boulder*; S George,* University of Colorado - Boulder
11:15am	**AA-WeM-3** Atomic Layer Epitaxy of GaN Directly on 4H-SiC using Ga–N Bonded Precursors, *P Rouf, N O'Brien, R Samii,* ***Henrik Pedersen****,* Linköping University, Sweden	**AS-WeM-3** Probing the Selectivity of Area-Selective Spatial ALD + Etch-Back Supercycles for SiO_2 by Low Energy Ion Scattering, ***Alfredo Mameli****,* TNO/Holst Center, Netherlands*; P Brüner,* IONTOF GmbH, Germany*; F Roozeboom,* TNO/Holst Center, Netherlands*; T Grehl,* IONTOF GmbH, Germany*; P Poodt,* TNO/Holst Center, Netherlands

	Emerging Materials **Room Jan & Hubert Van Eyck - Session EM-WeM** **Organic and Organic-Inorganic Hybrid Materials I** **Moderators:** Steven M. George, University of Colorado at Boulder, Mato Knez, CIC nanoGUNE	**Nanostructure Synthesis and Fabrication** **Room Auditorium - Session NS-WeM** **2D Nanomaterials by ALD I** **Moderators:** Tae Joo Park, Hanyang University, Virginia Wheeler, U.S. Naval Research Laboratory
10:45am		**INVITED: NS-WeM-1** Exploring ALD 2D Chalcogenides Beyond MoS_2, ***Miika Mattinen,*** University of Helsinki, Finland
11:00am	**EM-WeM-2** Vapor-Phase Synthesis and Surface Area Analysis of ZIF-8 Metal Organic Framework (MOF) on Fibrous Substrates via Atomic Layer Deposition, *R Nye, S Smith,* ***Nicholas M. Carroll****, G Parsons,* North Carolina State University	Invited talk continues.
11:15am		
11:30am	**INVITED: EM-WeM-4** Vapor Phase Infiltration for Transforming Polymers into Hybrid Materials: Mechanisms of Inorganic Entrapment and Structure-Property Implications, ***Mark Losego,*** Georgia Institute of Technology	**NS-WeM-4** Growth of Wafer-Scale Monolayer MoS_2 using Adsorbate-Controlled Atomic Layer Deposition, *D Kim,* ***Jae Chan Park****, W Kim,* Hanyang University, Republic of Korea*; J Park, B Shong,* Hongik University, Republic of Korea*; J Ahn, T Park,* Hanyang University, Republic of Korea
11:45am	Invited talk continues.	

Wednesday Afternoon, July 1, 2020

	Room Auditorium	
1:00pm	**INVITED: NS1-WeA-1** Atomistic Simulation of ALD of 2D Transition-Metal Dichalcogenides, ***Mahdi Shirazi,*** *E Kessels, A Bol,* Eindhoven University of Technology, Netherlands	**Nanostructure Synthesis and Fabrication** **Session NS1-WeA** **2D Nanomaterials by ALD II** **Moderators:** Jeffrey W. Elam, Argonne National Laboratory, Hyungjun Kim, Yonsei University, Korea
1:15pm	Invited talk continues.	
1:30pm		
1:45pm	**NS1-WeA-4** ALD of $MoSe_2$ using New Precursors, ***Raul Zazpe,*** University of Pardubice, Czech Republic*; R Krumpolec,* Brno University of Technology, Czech Republic*; J Charvot, L Hromadko, H Shopa, M Motola, M Krbal, F Bures, J Macak,* University of Pardubice, Czech Republic	
2:00pm	**NS1-WeA-5** Low Temperature Creation of Layered-MoS_2 Thin Films on Large Area High Aspect Ratio Substrates, ***Anil Mane****, D Choudhury, S Letourneau, J Elam,* Argonne National Laboratory	
2:15pm	**NS1-WeA-6** Gas Sensing Characteristics of $Mo_xW_{1-x}S_2$ Synthesized by Atomic Layer Deposition, ***Inkyu Sohn****, Y Kim, M Lee, J Park, H Kim,* Yonsei University, Republic of Korea	
2:30pm	**Break**	
2:45pm	**Break**	
3:00pm	**NS2-WeA-9** Visualizing the Nucleation of ALD on Polymers, ***Laura Astoreca,*** Ghent University - IMEC, Belgium*; P Esbah Tabaei,* Ghent University, Belgium*; D Schaubroeck, M Oop de Beeck,* Ghent University - IMEC, Belgium*; R Morent,* Ghent University, Belgium*; H De Smet,* Ghent University - IMEC, Belgium*; N De Geyter,* Ghent University, Belgium	**Nanostructure Synthesis and Fabrication** **Session NS2-WeA** **Nanomaterials by ALD - Nanoparticles and ALD on Polymers** **Moderators:** Jeffrey W. Elam, Argonne National Laboratory, Hyungjun Kim, Yonsei University, Korea
3:15pm		
3:30pm	**NS2-WeA-11** Pt-Doped In_2O_3 Thin Films: Control of the Chemical State and Structure via ALD, ***Ranjith K. Ramachandran****, M Filez,* Ghent University, Belgium*; E Solano,* Ghent University, Belgium, Spain*; H Poelman, M Minjauw, M Van Daele, J Feng,* Ghent University, Belgium*; A La Porta, T Altantzis,* University of Antwerp, Belgium*; E Fonda,* Synchrotron SOLEIL, SAMBA Beamline, France*; A Coati, Y Garreau,* Sychrotron SOLEIL, France*; S Bals,* University of Antwerp, Belgium*; G Marin, C Detavernier, J Dendooven,* Ghent University, Belgium	
3:45pm	**NS2-WeA-12** Study of Tuning Size, Coverage and Shape of Pd Nanoparticles Using Atomic Layer Deposition Through X-ray Based In-situ Characterization, ***Ji-Yu Feng,*** Ghent University, Belgium*; E Solano,* NCD-SWEET beamline, ALBA Synchrotron Light Source, Spain*; R Ramachandran, M Minjauw, M Van Daele,* Ghent University, Belgium*; D Hermida-Merino,* ESRF European Synchrotron Radiation Facility, France*; A Coati,* Synchrotron SOLEIL, France*; C Detavernier, J Dendooven,* Ghent University, Belgium	

Wednesday Afternoon, July 1, 2020

	Area Selective ALD **Room Baekeland - Session AS-WeA** **Selective ALD II & III** **Moderators:** Adrie Mackus, Eindhoven University, Netherlands, Christophe Vallée, LTM/CNRS-UJF, France	**Emerging Materials** **Room Jan & Hubert Van Eyck - Session EM-WeA** **Organic and Organic-Inorganic Hybrid Materials II & III** **Moderators:** Tero Pilvi, Picosun Oy, Ganesh Sundaram, Veeco-CNT
1:00pm	**AS-WeA-1** Area-Selective Atomic Layer Deposition of 2D WS_2 Nanolayers using Inhibitor Molecules, ***Shashank Balasubramanyam***, *M Merkx,* Eindhoven University of Technology, Netherlands; *M Verheijen,* Eurofins Materials Science Netherlands B.V., Netherlands; *E Kessels, A Mackus, A Bol,* Eindhoven University of Technology, Netherlands	
1:15pm	**AS-WeA-2** Kinetic Modeling of Ru Area-Selective Atomic Layer Deposition on Nanopatterns, ***Jan-Willem Clerix***, KU Leuven, Imec, Belgium; *E Alonso Marques,* KU Leuven, Imec, TU Delft; *J Soethoudt,* KU Leuven, Imec, Belgium; *F Grillo,* ETH Zurich, Switzerland; *G Pourtois,* Imec, Belgium; *R van Ommen,* Delft University of Technology, Netherlands; *A Delabie,* Imec, Belgium	**EM-WeA-2** Enhanced Stretchability in Inorganic-Organic Alucone Thin Films Deposited from Long-Chain Organic Precursors, ***Janne-Petteri Niemelä***, *N Rohbeck, J Michler, I Utke,* Empa, Switzerland
1:30pm	**AS-WeA-3** Area-Selective Atomic Layer Deposition on Chemically Similar Materials, ***Tzu-Ling Liu***, *S Bent,* Stanford University	
1:45pm	**AS-WeA-4** Area-Selective Atomic Layer Deposition Al_2O_3 using a Small Thiol Inhibitor and Effects of Precursor Size, *H Lee,* ***Bonwook Gu***, Incheon National University, Republic of Korea	**EM-WeA-4** Self-Terminating Molecular Layer Deposition of Polyurea and Growth Rejuvenation via Precursor Linking Group Selection, ***Rachel A. Nye***, *G Parsons,* North Carolina State University
2:00pm		
2:15pm		
2:30pm	**Break**	**Break**
2:45pm	**Break**	**Break**
3:00pm		**EM-WeA-9** Vapor-Phase Infiltration Synthesis of Organic-Inorganic Hybrid Nanocomposite Resists for Next-Generation Nanolithography, *N Tiwale,* Brookhaven National Laboratory; *A Subramanian,* Stony Brook University; *K Kisslinger, G Freychet, M Lu,* Brookhaven National Laboratory; *J Kim,* University of Texas at Dallas; *A Stein,* ***Chang-Yong Nam***, Brookhaven National Laboratory
3:15pm	**AS-WeA-10** Effect of Copper Surface Condition on Passivation Characteristics for Applications to Area Selective Atomic Layer Deposition, ***Su Min Hwang***, University of Texas at Dallas; *H Kim, J Kim,* The University of Texas at Dallas; *Y Jung,* University of Texas at Dallas; *L Pena, K Tan, J Veyan,* The University of Texas at Dallas; *D Alvarez, J Spiegelman,* RASIRC; *K Sharma, P Lemaire, D Hausmann,* Lam Research Corp.; *J Kim,* University of Texas at Dallas	
3:30pm	**AS-WeA-11** Top and Bottom Ta_2O_5 Topographical Selective Deposition on 3D structures by Plasma Enhanced Atomic Layer Deposition, ***Taguhi Yeghoyan***, *V Pesce, M Jaffal,* LTM-UGA, France; *R Gassilloud, N Posseme,* CEA-Leti, France; *M Bonvalot, C Vallée,* LTM-UGA, France	
3:45pm		**EM-WeA-12** Synthesis of SiAlCO Polymer Derived Ceramics (PDC) Thin Films using Molecular Layer Deposition, ***Kristina Ashurbekova***, Dagestan State University, Russian Federation; *E Modin, A Chuvilin, M Knez,* CIC nanoGUNE BRTA, Spain; *I Abdulagatov,* Dagestan State University, Russian Federation

Wednesday Afternoon, July 1, 2020

	Tutorials **Room Live - Session TU2-WeA** **Tutorial Session: Wednesday Live** **Moderators:** Paul Poodt, Holst Centre / TNO, Erwin Kessels, Eindhoven University of Technology, the Netherlands, Jean-François de Marneffe, IMEC	**ALD Applications** **Room Van Rysselberghe - Session AA-WeA** **ALD for Semiconductor Applications II & III** **Moderators:** Scott B. Clendenning, Intel Corp., Charles Dezelah, ASM
1:00pm	**TU2-WeA-1** Wednesday Tutorial Welcome & Sponsor Thank You, ***Paul Poodt,*** TNO/Holst Center, The Netherlands, Netherlands	**INVITED: AA-WeA-1** Study of ALD HfO_2-Based High-k for GaN Power Devices and Ferroelectric Devices, ***Toshihide Nabatame,*** National Institute for Materials Science, Japan*; T Onaya,* Meiji University, Japan*; E Maeda, M Hirose,* Shibaura Institute of Technology, Japan*; Y Irokawa,* National Institute for Materials Science, Japan*; K Shiozaki,* Nagoya University, Japan*; Y Koide,* National Institute for Materials Science, Japan
1:15pm	**INVITED: TU2-WeA-2** Growth Mechanisms and Selectivity During Atomic Layer Deposition, ***Annelies Delabie,*** KU Leuven – University of Leuven/IMEC, Belgium	Invited talk continues.
1:30pm	Invited talk continues.	**AA-WeA-3** The Effect of Oxygen Source on Ferroelectricity of Atomic Layer Deposited $Hf_{0.5}Zr_{0.5}O_2$ Thin Film, ***Yong Chan Jung,*** *J Mohan,* University of Texas at Dallas*; H Kim, H Hernandez-Arriga,* The University of Texas at Dallas*; T Onaya,* Meiji University, Japan*; K Kim, N Kim,* The University of Texas at Dallas*; S Kim,* Kangwon National University, Republic of Korea*; A Ogura,* Meiji University, Japan*; R Choi,* Inha University, South Korea*; J Ahn,* Hanyang University, Republic of Korea*; J Kim,* University of Texas at Dallas
1:45pm	Invited talk continues.	**AA-WeA-4** Deposition of Inherently Ferroelectric Films by ALD Using ZrD-04 and HfD-04, ***Vijay K. Narasimhan,*** Intermolecular, Inc.*; J Lehn,* EMD Performance Materials*; K Littau,* Intermolecular*; J Woodruff, R Kanjolia,* EMD Performance Materials
2:00pm		**AA-WeA-5** Ferroelectricity of 300°C Low Temperature Fabricated $Hf_xZr_{1-x}O_2$ Thin Films by Plasma-Enhanced Atomic Layer Deposition using Hf/Zr Cocktail Precursor, ***Takashi Onaya,*** Meiji University, Japan*; T Nabatame,* National Institute for Materials Science, Japan*; Y Jung,* University of Texas at Dallas*; H Hernandez-Arriaga,* The University of Texas at Dallas*; J Mohan,* University of Texas at Dallas*; H Kim, A Khosravi,* The University of Texas at Dallas*; N Sawamoto,* Meiji University, Japan*; C Nam, E Tsai,* Brookhaven National Laboratory*; T Nagata,* National Institute for Materials Science, Japan*; R Wallace,* The University of Texas at Dallas*; J Kim,* University of Texas at Dallas*; A Ogura,* Meiji University, Japan
2:15pm	**INVITED: TU2-WeA-6** Self-limiting Surface Reactions for Atomic-level Control of Materials Processing, ***Simon D. Elliott,*** Schrödinger, Inc.	**AA-WeA-6** Atomic Layer Deposition of GeS Film for 3D Cross-Point Memory Scaling, ***Myoungsub Kim,*** *Y Kim, I Sohn, H Kim,* Yonsei University, Republic of Korea
2:30pm	Invited talk continues.	**Break**
2:45pm	Invited talk continues.	**Break**
3:00pm		**INVITED: AA-WeA-9** Atomic Layer Annealing of AlN to Template The Growth of High Thermal Conductivity Heat Spreader Films, *S Ueda, A McLeod,* University of California, San Diego*; M Chen, C Perez, E Pop,* Stanford University*; D Alvarez,* RASIRC*;* ***Andrew Kummel,*** University of California, San Diego
3:15pm	**INVITED: TU2-WeA-10** Fundamentals of ALE – Optimizing Passivation and Etch*, ***Mark Kushner,*** University of Michigan	Invited talk continues.
3:30pm	Invited talk continues.	**AA-WeA-11** Precision Defect Engineering of Metal/Insulator/Metal (MIM) Diodes Using Localized ALD Transition Metal Impurities, ***Konner Holden,*** *Y Qi, J Conley, Jr.,* Oregon State University
3:45pm	Invited talk continues.	**AA-WeA-12** Two-Dimensional Electron Gas at the Interface of an Atomic-Layer-Deposited Binary Oxides Ultrathin (< 5 nm) Film Heterostructures, *T Park,* ***Ji Hyeon Choi,*** *T Seok, Y Liu,* Hanyang University, Republic of Korea*; J Jang,* Korea Basic Science Institute, Republic of Korea*; S Lee,* Ajou University, Republic of Korea*; D Cho,* Chonbuk National University, Republic of Korea
4:00pm	**TU2-WeA-13** Questions & Answers, *M Kushner,* University of Michigan*; A Delabie,* KU Leuven – University of Leuven/IMEC, Belgium*; S Elliott,* Schrödinger, Inc.*;* ***Jean-François de Marneffe,*** IMEC, Belgium	
4:15pm	Talk continues.	
4:30pm	**TU2-WeA-15** Session Over - View On Demand Presentations, ***Erwin Kessels,*** Eindhoven University of Technology, Netherlands	
4:45pm	Talk continues.	

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