

Baltic ALD 2014 conference, Helsinki, May 11-13, 2014

Program

Sunday, May 11

11.00 – 14.45 **Excursion to Suomenlinna Fortress**

18.00 – **Get-together Party**

Monday, May 12

8.00 **Registration**

Lecture Hall D101

9.00 **Opening**

9.10 **INVITED: From ideas to global industry – 40 years of ALD in Finland,**
Dr Tuomo Suntola, *Picosun Ltd, Finland*

9.40 **INVITED: ML-ALD seeks its niche in education, science and application,**
Professor Victor Drozd, *St. Petersburg State University, Russia*

10.10 **Coffee break**

Metals, nitrides and carbides (Lecture Hall D101)

10.30 **INVITED: How to be successful in metal nitride ALCVD,** Professor Shi-Woo Rhee,
Pohang University of Science and Technology, Korea

11.00 **Silyl Elimination Reactions in the Atomic Layer Deposition of Metallic First
Row Transition Metal and Other Element Films,** Professor Charles Winter, *Wayne
State University, USA*

11.15 **ALD TiC – A Testimony of Double Replacement Reaction,** Dr Wei-Min Li, *Picosun
Ltd, Finland*

11.30 **Nanocrystalline $Ti_xW_yN_z$ thin films deposited by atomic layer deposition,** Mr
Tom Blomberg, *ASM Microchemistry Ltd, Finland*

11.45 **ALD of Ruthenium at 100°C using the ToRuS –precursor,** Mr Matthias Minjauw,
University of Ghent, Belgium

12.00 **Lunch break**

Microelectronic applications (Lecture Hall D101)

13.00 **INVITED: High mobility materials for (beyond) CMOS,** Professor Marc Heyns,
IMEC, Belgium

13.30 **INVITED: High-k devices by ALD for semiconductor applications,** Dr Jonas
Sundqvist, *Fraunhofer IPMS-CNT, Germany*

14.00 **Fermi Level De-pinning In Metal-Semiconductor Contacts Via Nanometre-scale
ALD Dielectric Films,** Dr Peter King, *Newcastle University, United Kingdom*

14.15 **Influence of the ALD growth parameters on the ferroelectric properties of Si doped HfO₂**, Ms Claudia Richter, *NaMLab gGmbH, Germany*

14.30 **Coffee break**

Reaction mechanisms (Lecture Hall D101)

15.00 **Reaction Mechanisms in Atomic Layer Deposition**, Dr Kjell Knapas, *University of Helsinki, Finland*

15.15 **In-situ QCM monitoring of ALD in porous materials**, Mr Martin Knaut, *Dresden University of Technology, Germany*

15.30 **Explaining the self-limiting nature of ALD through saturation and activation of acidity and basicity at oxide surfaces**, Dr Simon Elliot, *Tyndall National Institute, Ireland*

15.45 **In situ mid-IR spectroscopy for monitoring Al₂O₃ ALD growth on porous silica films: thermal versus plasma enhanced ALD**, Ms Elizabeth Levrau, *University of Ghent, Belgium*

16.00 **In situ reaction mechanism studies of the Ho(thd)₃, Ti(OiPr)₄ and ozone ALD processes**, Mr Yoann Tomczak, *University of Helsinki, Finland*

16.15 **Growth kinetics and film properties of tantalum nitride ALD investigated by insitu real-time ellipsometry and in-vacuo surface analysis**, Mr Marcel Junige, *Dresden University of Technology, Germany*

Process development (Lecture Hall E204)

15.00 **Controlling The Oxidation State Of Manganese During Plasma Enhanced Atomic Layer Deposition Using The Mn(thd)₃ Precursor**, Mr Felix Mattelaer, *University of Ghent, Belgium*

15.15 **Plasma-assisted ALD of Silicon Oxide and Silicon Nitride in a Wide Temperature Window**, Dr Harm Knoops, *Oxford Instruments Plasma Technology, United Kingdom*

15.30 **Stabilization of Nanoscale Epitaxial Spinel Ferrite Thin Films at Low Temperature by Atomic Layer Deposition**, Dr Mariona Coll, *Institut de Ciència de Materials de Barcelona, Spain*

15.45 **Metal/IL/TiO₂/metal nanostructures as the most promising switching materials in RRAM memory**, Professor Elena Filatova, *St. Petersburg State University, Russia*

16.00 **Platinum Atomic Layer Deposition on Graphene**, Mr Réne Vervuurt, *Eindhoven University of Technology, Netherlands*

16.15 **Synthesis and Characterization of Titania Inverted Opals with Multi-Band Gaps and High-Temperature Stability for Thermal Barrier Coatings**, Dr Robert Zierold, *University of Hamburg, Germany*

16.30 **Poster session**

18.30 **Dinner**

Tuesday, May 13

9.00 **Opening (Lecture Hall D101)**

9.05 **INVITED: Atomic layer deposition of thin films on graphene: characterization of growth process and material properties**, Professor Jan Aarik, *University of Tartu, Estonia*

9.35 **INVITED: Atomic layer deposition/epitaxy for topological insulators**, Professor Kornelius Nielsch, *University of Hamburg, Germany*

10.05 **Coffee break**

Energy applications (Lecture Hall D101)

10.30 **INVITED: Applications of atomic layer deposition for Li ion batteries and fuel cells**, Professor Xueliang (Andy) Sun, *University of Western Ontario, Canada*

11.00 **Atomic Layer Deposited Lithium Aluminum Oxide: (In)Dependency of Film Properties from Pulsing Sequence**, Dr Ville Miikkulainen, *University of Oslo, Norway*

11.15 **Studies on Atomic Layer Deposition of AlF_3** , Ms Miia Mäntymäki, *University of Helsinki, Finland*

11.30 **Counter-Electrode and Compact Layers for Flexible Dye-Sensitized Solar Cells by means of Low Temperature Atomic Layer Deposition**, Mr Valerio Zardetto, *Eindhoven University of Technology, Netherlands*

11.45 **Platinum ALD from $Pt(acac)_2$ and O_3 : Growth mechanism and electrocatalytic applications**, Professor Julien Bachmann, *Friedrich-Alexander University Erlangen-Nürnberg, Germany*

12.00 **Lunch break**

13.00 **INVITED: Ambient Pressure Molecular Concentration Mapping at Surfaces Using MeV-SIMS**, Professor Roger Webb, *University of Surrey, United Kingdom*

Finnish Centre of Excellence in ALD (Lecture Hall D101)

13.35 **Atomic layer deposition of holmium titanium oxide films**, Dr Kaupo Kukli, *University of Helsinki, Finland*

13.50 **Atomic layer deposition of bismuth titanate ($Bi_4Ti_3O_{12}$)**, Dr Manjunath Puttaswamy, *University of Helsinki, Finland*

14.05 **Cu_2O films grown by ALD using copper(II)acetate and water**, Mr Mikko Heikkilä, *University of Helsinki, Finland*

14.20 **Atomic layer deposition and characterization of thermoelectric chalcogenides**, Ms Tiina Sarnet, *University of Helsinki, Finland*

14.35 **Coffee break**

15.00 **Silicon-based lateral high-aspect-ratio (LHAR) test structures for ALD growth conformality and uniformity evaluation**, Dr Riikka Puurunen, *VTT Technical Research Centre of Finland, Finland*

- 15.15 **Magnetism in multiferroic BiFeO₃ thin films synthesized by ALD**, Dr Benoit Marchand, *University of Helsinki, Finland*
- 15.30 **ALD coating of porous silicon**, Dr Kestutis Grigoras, *VTT Technical Research Centre of Finland, Finland*
- 15.45 **Temperature dependence of the mechanical properties of ALD TiO₂ from TiCl₄ and H₂O on Si**, Ms Oili Ylivaara, *VTT Technical Research Centre of Finland, Finland*
- 16.00 **Characterization of Fusion Protein Monolayer Properties With Dual-gate Graphene FETs**, Mr Miika Soikkeli, *VTT Technical Research Centre of Finland, Finland*
- 16.15 **Conversion of atomic layer deposited CaCO₃ to nanocrystalline hydroxyapatite thin films**, Mr Jani Holopainen, *University of Helsinki, Finland*
- 16.30 **Closing**
- 16.45 **Excursion to Picosun facilities in Masala**

Characterization (Lecture Hall D204)

- 13.40 **Why are ALD thin films and interfaces special?**, Dr Massimo Tallarida, *Brandenburg University of Technology, Germany*
- 13.55 **A valuable new tool for surface coverage: solid state silicon NMR for calculating monolayer coverage of silicon dioxide**, Professor Sean Barry, *Carleton University, Canada*
- 14.10 **Development of ion beam analysis techniques for composition studies of thin films grown by atomic layer deposition**, Dr Timo Sajavaara, *University of Jyväskylä, Finland*
- 14.25 **Characterization of TiO₂ anatase deposited on CNTs by ALD**, Dr Ivo Utke, *Swiss Federal Laboratories for Materials Science and Technology, Switzerland*
- 14.40 **Coffee break**

Hybrid Materials (Lecture Hall E204)

- 15.00 **Formation of hybrid materials using thd-type precursors and carboxylic acids**, Professor Ola Nilsen, *University of Oslo, Norway*
- 15.15 **Molecular Layer Deposition of Aluminum and Titanium Alkoxide for the Encapsulation of Flexible OLED Devices**, Dr Christoph Hossbach, *Dresden University of Technology, Germany*
- 15.30 **Studies on Atomic Layer Deposition of IRMOF-8**, Mr Leo Salmi, *University of Helsinki, Finland*
- 15.45 **Inorganic-organic thin films from TiCl₄ and 4-aminophenol precursors**, Mrs Pia Sundberg, *Aalto University, Finland*
- 16.00 **Atomic/molecular layer deposition of hybrid inorganic-organic [(TiO₂)_m (Ti-O-C₆H₄-O)]_n superlattice thin films from TiCl₄, H₂O and hydroquinone precursors**, Mr Janne-Petteri Niemelä, *Aalto University, Finland*
- 16.15 **Atomic Layer Deposition on Pharmaceuticals**, Dr Tommi Kääriäinen, *University of Colorado, USA*
- 16.30 **Closing**