

PROGRAM Booklet

ALD for Industry 2022

March 29 – 30, 2022 | HYPERION Hotel | Dresden

MAIN SPONSOR 2022



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INTRODUCTION

The workshop will show the bridge between basic science, industrialisation and commercialisation of this technology.

According to a research study, "The global Atomic Layer Deposition Equipment (ALD) market is expected to reach USD 8.2 billion by 2026, growing at a CAGR of 28% from 2020 to 2026 layer, excellent adhesion of high aspect ratio surfaces and pinhole-free coatings."

Committee

- Quentin Demarly, Air Liquide Advanced Materials, Paris, France
- Dr. Christoph Hossbach, Picosun Oy and Picosun Europe GmbH, Dresden, Germany
- Dr. Martin Knaut, IHM, TU Dresden, Germany
- Prof. Mikko Ritala, University of Helsinki, Helsinki, Finland
- Dr. Jonas Sundqvist, BALD Engineering AB, Wärmdö, Sweden
- Dr. Claudia Wiemer, CNR IMM, Unit of Agrade Brianza, Italy

Interest in industrial solutions for Atomic Layer Deposition is increasing. This opens up new possibilities for innovative materials and designs in a wide range of applications. ALD is one of the best deposition methods for producing conformal and thin films. Furthermore, it is a key technology for the semiconductor industry, but not only for the semiconductor industry. Atomic layer deposition, is a thin film technology that enables new and highly innovative products for a wide range of applications.

The Workshop will focus on the currents markets for ALD and address the applications in Semiconductor industry, MEMS & Sensors, Battery technology, Medical, Display, Lightning and Photovoltaics.

PROGRAMM

Tuesday, March 29, 2022

10:00 | Exhibition build-up &
Registration for Exhibitors

11:00 | Registration for Participants

12:00 | **OPENING**

TUTORIAL – Session 1

12:10 | **ALD: materials, process technologies and applications**
Prof. Erwin Kessels | Eindhoven University of Technology, Eindhoven, The Netherlands

12:40 | **ALD equipment and precursor demand forecast due to continued semiconductor device scaling and fab expansions**

Dr. Jonas Sundqvist | BALD Engineering AB, Wärmdö, Sweden

13:00 | **Basics of ALD and process monitoring**
Dr. Martin Knaut | Technical University Dresden, Dresden, Germany

13:20 | **Atomistic simulation frameworks for ALD**
Dr. Umberto Martinez | Synopsys, Copenhagen, Denmark

13:40 | **LUNCH BREAK & EXHIBITION**

TUTORIAL – Session 2

14:40 | **Atomic Layer Deposition for Heterogeneous Catalysis**
Dr. Matthias Filez | Ghent University, Ghent, Belgium

15:00 | **ALD opportunities in a 3D-evolving memory landscape**
Johan Swerts | IMEC, Leuven, Belgium

15:20 | **An Introduction to EpiValence – a Chemical Supplier to the ALD Community**
Dr. Hywel Davies | EpiValence, Cleveland, UK

15:30 | **COFFEE BREAK & EXHIBITION**

WORKSHOP – Session 1

16:30 | **Spatial ALD for energy applications; from R&D to mass production**
Dr. Paul Poedt | Holst Centre/TNO and SALDtech B.V., Eindhoven, The Netherlands

16:50 | **Enabling high volume manufacturing using Spatial ALD technology**
Dr. Philipp Maydannik, Beneq Oy, Espoo, Finland

PROGRAM

Tuesday, March 29, 2022

17:10 | **Inherently Selective Atomic Layer Process based on spatial micronozzles**

Dr. Maksym Plakhotnyuk | ATLANT 3D Nanosystems, Kongens Lyngby, Denmark

17:30 | **An introduction to Veeco**

Dr. Eric Deguns, Veeco GmbH, Aschheim, Germany

17:40 | **Discussion & Questions**

18:00 | **END OF WORKSHOP DAY**

GET-TOGETHER

19:00 | **Dinner at Sophienkeller**

You are invited by **Beneq** to have a delicious and inspiring Dinner together with your colleagues and partners. Time for discussions and discovering new contacts.

Sponsored by



Wednesday, March 30, 2022

WORKSHOP – SESSION 2

09:00 | **OPENING**

09:10 | **ALD for MEMS sensors and actuators**

Dr. Luca Lamagna | STMicroelectronics, Agrate Brianza, Italy

09:30 | **PowderMEMS**

- **A Novel Microfabrication Technique for Integrated 3D Functional Microstructures based on ALD**

Dr. Thomas Lisec | Fraunhofer ISIT, Itzehoe, Germany

09:50 | **Sequential infiltration Synthesis in Polymers for different applications.**

Dr. Michele Perego | CNR IMM, Italy

10:10 | **An introduction to Dockweiler Chemicals GmbH**

Dr. Jörg Koch | Dockweiler Chemicals GmbH, Marburg, Germany

10:30 | **COFFEE BREAK & EXHIBITION**

Location for Get Together:

Sophienkeller at the Taschenberg Pallais
Taschenberg 3, 01067 Dresden
www.sophienkeller-dresden.de/en/

PROGRAM

Wednesday, March 30, 2022

WORKSHOP – SESSION 3

11:00 | Beyond ALD: Large-scale continuous coating of powders to enhance battery materials

Dr. Sébastien Moitzheim, Delft IMP B.V., Delft, The Netherlands

11:20 | Roll-to-roll production of interface coatings in battery cells

Kalle Niiranen, Beneq Oy, Espoo, Finland

11:40 | The ALD of SnO and the effect of post deposition annealing

Dr. Paul Williams, Pegasus Chemicals Limited, Flintshire, UK

12:00 | LUNCH BREAK & EXHIBITION

WORKSHOP – SESSION 4

13:00 | Atomic Layer Deposition enables new medical applications:

Encapsulation, functionalization and electronic-cell interfaces

Dr. Dorothee Deschmann, Fraunhofer IMS, Duisburg, Germany



13:20 | Atomic Layer Deposition enables dimensionless, biocompatible encasings for medical implants pro-longing their lifetime

Dr. Christoph Hossbach, Picosun Europe GmbH, Dresden, Germany

13:40 | Tailoring material properties of PEALD coatings by bias

Dr. Adriana Szeghalmi | Fraunhofer IOF, Jena, Germany

14:00 | Corona Oxide Characterization of Silicon Oxides deposited by ALD

Dr. Henry Bernhardt | Infineon Technologies Dresden GmbH, Dresden, Germany

14:20 | COFFEE BREAK & EXHIBITION

WORKSHOP – SESSION 5

15:00 | ALD-deposition of electrical conductive, transparent oxides (TCO) as IGZO and AZO.

Jakob Zessin, SENTECH Instruments GmbH, Berlin, Germany

15:20 | Epitaxy of Hybrid Quantum Materials

Dr. Sabbir A. Khan, Danish National Metrology Institute, Copenhagen, Denmark

15:40 | Panel Discussion

16:20 | Final Remarks

16:30 | END OF WORKSHOP

Chances in the Program can occur.

Industrial Exhibition



Beneq Oy, Finland
www.beneq.com

Beneq is the home of atomic layer deposition. In 1984, we established the world's first industrial production using ALD. Today, we lead the market with products for R&D (TFS 200, TFS 500, R2), semiconductor device fabrication (Transform®), 3D and batch production (P400A, P800, P1500), ultra-fast spatial ALD (C2R), and roll-to-roll ALD (Genesis).



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Dockweiler
 Chemicals GmbH
www.dockchemicals.com



SEMPA SYSTEMS
 GmbH
www.sempa.de



EpiValence Limited
www.epivalence.com



Sentech
 Instruments
 GmbH
www.sentech.com



Euris GmbH,
 Germany
www.euris-semiconductor.com



Veeco Instruments
 GmbH
www.veeco.com

Registration Fees

Early Bird Ticket **690 EUR**

until February 15, 2022

Regular Ticket **790 EUR**

after February 15, 2022

Student Ticket **390 EUR**

copy of your valid student card necessary.

The registration fee includes the participation of the chosen event, digital workshop booklet, coffee and lunch breaks.

Online Registration

Please use the online registration at the event website:

www.efds.org/event/ald2022/

Event Location

HYPERION Hotel Dresden am Schloss
Schlossstraße 16, 01067 Dresden

Tel. +49 341 98389137

www.h-hotels.com

Data Privacy Statement

We inform you, that the event will be documented photographically. With your participation, you consent to the usage of all taken pictures for communication and marketing issues by EFDS. According to your consent during the online registration a list of participants with name and company affiliation was created and published exclusively in the conference proceedings. The data is collected according to the data privacy statement of the European Society of Thin Films. You can find the data privacy statement under:
<https://www.efds.org/datenschutz>.

Join the Exhibiton!

You have services and products for Atomic Layer Deposition? Come to the event and present your portfolio to an interested audience.

Book your Booth!

Contact:

 **+49 351 8718370**

 info@efds.org

 www.efds.org

Event Management

European Society of Thin Films

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EFDS – European Society of Thin Films

EFDS is member of the AiF – German Federation of Industrial Research Associations and initiates projects for the “Industrial Collective Research” Program funded by the Federal Ministry of Economic Affairs and Energy. We organize the exchange of experiences between research and economy to solve shared problems through shared projects. This pre-competitive research is aimed to open up modern surface technologies. Become a member and use the strength of our network.



CONTACT

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About us

- EFDS-Team (CEO + 3 staff members)
- EFDS - Executive Board (10 honorary members from industry & research)
- EFDS - Advisory Board (16 honorary members from industry & research)
- around 200 members from industry and research

Membership

Your Benefit as EFDS member

- active and established network
- participation in 4 Technical Committee
- cooperation and participation in Workshops, Tutorials,
- conventions and Conferences
- access to the network PLASMA GERMANY and contact to
- 10 additional associated networks
- exclusive events for EFDS members only
- training possibilities
- various possibilities to present your Company or Institute
- participation in accompanying committees in projects
- of the Industrial Collective Research

OUTLINE

10.02.2022 – 11.02.2022 Workshop | **Workshop on Plasma-Assisted Nanomaterials Engineering**
Prague, Czech Republic | [Link to event website](#) | language: english

29.03.2022 – 30.03.2022 Workshop, Tutorial & Exhibition | **ALD for Industry**
Dresden, Germany | [Link to event website](#) | language: english

12.04.2022 – 13.04.2022 Workshop | **PLASMA GERMANY Frühjahrssitzung**
Herzogenaurach, Germany | [Link to event website](#) | language: german

17.05.2022 – 18.05.2022 Workshop | **Nachhaltigkeit durch Tribologische Schichten**
Karlsruhe, Germany | [Link to event website](#) | language: german

12.09.2022 – 15.09.2022 Conference & Exhibition | **PSE2022**
18th International Conference on Plasma Surface Engineering
Erfurt, Germany | [Link to event website](#) | language: english

Changes can occur. Recent information you can find under: www.efds.org.

18th International Conference on Plasma Surface Engineering

September 12 – 15, 2022 | Trade Fair Erfurt



Main Topic 2022: Changes in Plasma Surfaces Engineering
Trend Topic 2022: Plasma(-catalysis) in gas conversion processes

Deadline for Abstracts & Award Proposals: January 31, 2022