

WORKSHOP:

Sputtering for Precision Optics II – Digital Transformation Driven Trends in the Coating Technology

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June 11th – 12th, 2024
Bühler Leybold Optics, Alzenau, Germany

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Introduction

Photonic technologies play a key role in the ongoing trend towards digitalisation in almost all areas of technology and everyday life. Photonic sensors, integrated optics and miniaturised optical systems enable technological innovations, new monitoring methods and process optimisation for the digitalisation and automation of the industrial production.

The production of such optical systems and the development of new markets and applications requires further development of technologies and the in-depth characterisation of complex processes in the optical manufacturing. The aim is to design these precisely and cost-effectively and to develop the manufacturing processes. Compared to processes in the electronics production, the effort involved is usually higher due to the significantly greater range of functions, materials and structures. At the same time, an increasing fusion of both areas, e.g. optical functionality at wafer level, can be recognised. This is referred to as Wafer Level Optics.

Innovative production technologies for optical coatings, e.g. for anti-reflective coatings and dielectric mirrors, filters, beam splitters and waveguides are essential for applications in the miniaturized optical systems and integrated optics, for image processing, photonic sensors and in the semiconductor industry. Sputtering technology is one of these modern technologies. In this workshop, we would like to show you new, digitalization driven trends in the technologies and applications and how a wide variety of coating materials with the desired properties can be applied to optics made of glass, metal or other materials.

PROGRAM*



**Tuesday,
June 11th, 2024**

11:00 | **Participant Registration**

12:00 | **Welcome Words**

Dr. Steffen Runkel | Bühler Alzenau GmbH,
Germany

12:05 | **Opening**

Prof. Dr. Norbert Kaiser | Fraunhofer Institute for
Applied Optics and Precision Engineering IOF,
Germany

Session 1 | Keynotes

12:20 | **Trends, Opportunities and Challenges
for the Optical Coating Industry**

Dr. Mathias Mende | Edmund Optics GmbH,
Germany

12:50 | **Emerging Applications in Photonics:
Optical Thin Films in Semiconductor Devices**

Dr. Stephan Mingels & Dr. Christian Schindler |
Bühler Leybold Optics, Germany

13:20 | **COFFEE BREAK**

Session 2 | Miniaturized and Integrated Optics

14:00 | **Examples of Photonic Integration at
ZEISS**

Dr. Stefan Richter | Carl Zeiss AG, Germany

14:25 | **EUV Multilayer Coatings with NESSY
Coaters – Exploring Physical Limits**

Dr. Torsten Feigl | optiX fab GmbH, Germany

14:50 | **Thin Film Trends in Integrated Optics**

Dr. Ronald Dekker | LioniX International B.V.,
The Netherlands

15:15 | **Miniaturized Substrateless Thin Film
Filters for Optics Integration**

Dr. Gerd-Albert Hoffmann | Laser Zentrum
Hannover e.V. (LZH), Germany

15:40 | **COFFEE BREAK**

Session 3 | Imaging and Sensors

16:00 | **Microwave Plasma Assisted Deposition
of Optical Coatings and Applications in
Photonic Sensors and Imaging**

Prof. Dr. Des Gibson | University of the West of
Scotland & Albasense Ltd, United Kingdom

16:25 | **Optical Precision on the Reverse Side:
Requirements and Solutions for Double-Sided
Coatings**

Michael Schneider | Von Ardenne GmbH, Germany
& Stefan Bruns | Fraunhofer Institute for Surface
Engineering and Thin Films IST, Germany

16:50 | **Photolithographic structuring of complex
PARMS filters**

Marc Lappschies | Optics Balzers Jena GmbH,
Germany

17:15 | **Wafer Level Patterning of Optical Filters:
Seeing Things Differently.**

Wouter Charle | imec, Belgium

17:40 | **Summary of the First Workshop Day**

17:50 | **End of 1st Workshop Day**

GET TOGETHER

19:00 – 22:00 | **JOINT DINNER**

PROGRAM*



**Wednesday,
June 12th, 2024**

08:20 | Registration

Completion Session 3 | Imaging and Sensors

08:35 | **Challenges in High Quality and Low Defect Mirror Depositions for MEMS Applications**

Maria Esperanza Navarro Fuentes | Fraunhofer Institute for Photonic Microsystems IPMS, Germany

Session 4 | Trends & Innovations I

09:00 | **Multilayer Coating for Femtosecond and Attosecond Physics**

Dr. Vladimir Pervak | Ludwig-Maximilians-Universität München, Germany

09:25 | **Light-Tunable Optical Metasurfaces**

Dr. Purushottam Poudel | Friedrich-Schiller-University Jena, Germany

09:50 | **Target Materials - A Vital Role in Coating Operations, Looking at Quality and Sustainability**

Alfred Willer | Sindlhauser Materials GmbH, Germany

10:15 | COFFEE BREAK

Session 5 | Trends & Innovations II

11:15 | **Semiconductor Deposition Equipment for Precision Optics**

Dr. Taguhi Yeghoyan | Yole Group, France

11:40 | **Measuring Ultra-Low Optical Losses in Optical Materials and Coatings: The Key to Process Improvement**

Dr. Christian Mühlig | Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Germany

12:05 | **Photonic Technologies as an Indispensable Key Enabler for Innovations in Quantum Technology.**

Dr. Bernd Jungbluth | Fraunhofer Institute for Laser Technology ILT, Germany

12:30 | LUNCH BREAK

Session 6 | Interactive Exchange

13:30 | **Discussion on Research & Cooperation Needs**

Moderation by Dr. Christian Schindler | Bühler Leybold Optics & Participants

13:55 | **Guided Tour through the Bühler Leybold Optics "Application Center for Thin-Film Solutions"**

the participants split into groups

15:30 | END OF THE WORKSHOP

* Program – Current status 07/05/2024 | Changes possible





GENERAL

Participant fees

Early bird ticket (Standard) **730 EUR**
until April 10, 2024

Participation ticket (Standard) **830 EUR**
from April 11, 2024

Participation ticket (Student) **420 EUR**
Please send us a copy of your valid student ID to info@efds.org.

Participation fees are tax-free according to §4 (22a) UStG.

Online Registration

Please register on the website
<https://efds.org/en/event/workshop-optic-ii/>



Event Location

Bühler Alzenau GmbH
Siemensstraße 88
63755 Alzenau, Germany

Workshop Committee:

Dr. Christian Schindler | Bühler Leybold Optics

Dr. Diana Tordova | Carl Zeiss Jena GmbH

Dr. Adriana Szeghalmi | Fraunhofer IOF Jena

Uwe Heydenreich | TRUMPF Hüttinger GmbH + Co. KG

Anja Härtel | EFDS e.V.

Event Management

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