PSE 2024

19TH INTERNATIONAL CONFERENCE ON PLASMA SURFACE ENGINEERING

September 2 – 5, 2024 | Erfurt, Germany

INDUSTRY SPECIAL
»PLASMA SURFACE ENGINEERING ENABLING SUSTAINABILITY«

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2024 CONFERENCES #PSE

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PLASMA GERMANY

Organized by:
European Joint Committee on Plasma and Ion Surface Engineering (EJC/PISE)

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Europäische Forschungsgesellschaft Dünne Schichten e. V.
European Society of Thin Films

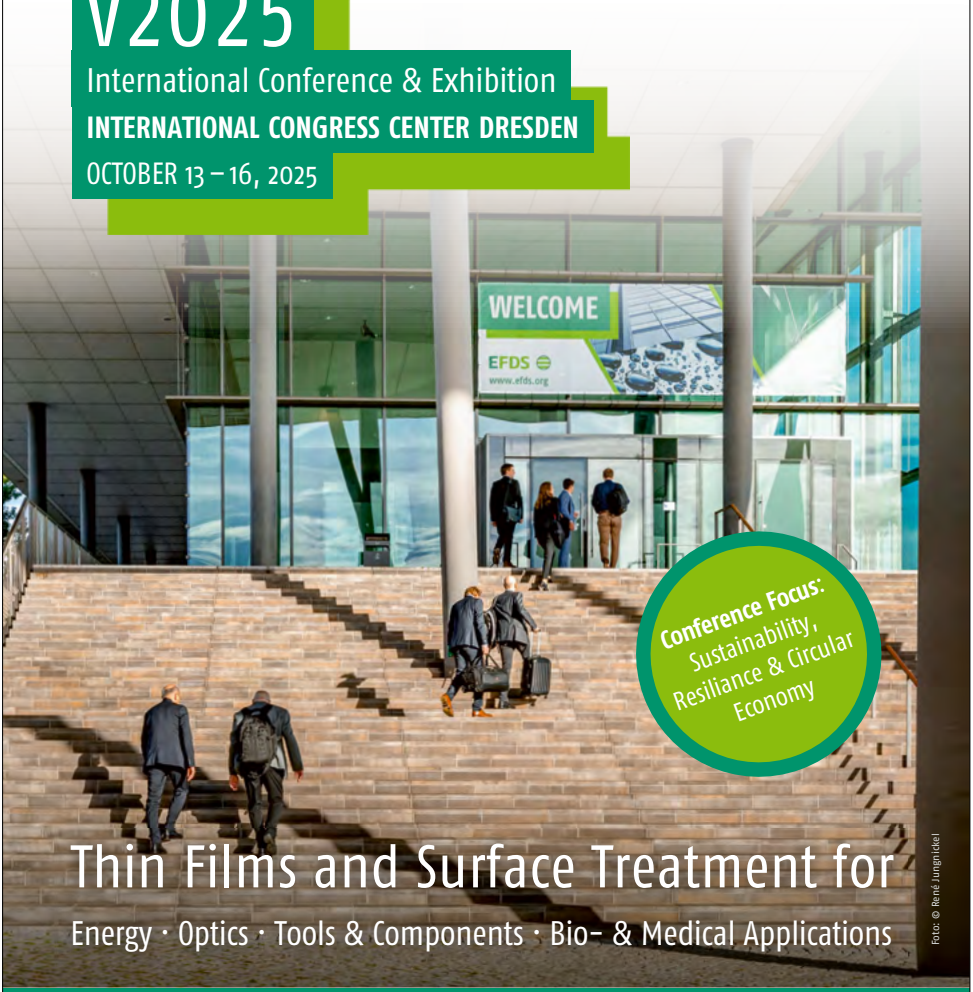
2025 VACUUM PLASMA SURFACE COATING

V2025

International Conference & Exhibition

INTERNATIONAL CONGRESS CENTER DRESDEN

OCTOBER 13 – 16, 2025



Conference Focus: Sustainability, Resiliance & Circular Economy

Thin Films and Surface Treatment for

Energy · Optics · Tools & Components · Bio- & Medical Applications

Foto: © René Jungnickel

www.efds.org/v2025

PSE 2024

19TH INTERNATIONAL CONFERENCE ON PLASMA SURFACE ENGINEERING

Erfurt, Germany | September 2 – 5, 2024

Program and Exhibition

(as at August 15, 2024)

Organizer of the Conference

European Joint Committee on
Plasma and Ion Surface Engineering (EJC/PISE)

European Society of Thin Films

PLASMA GERMANY

Scientific Program

Holger Kersten
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Germany

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Evatec AG
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(as at August 15, 2024)

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Scope of the Conference

Fundamentals and applications of plasma and ion beam techniques in surface engineering

The PSE 2024 will be held in the Trade Fair Erfurt (Thuringia) Germany, from Monday, September 2 to Thursday, September 5, 2024. The biennial PSE conference series is organized by the European Joint Committee on Plasma and Ion Surface Engineering.

With nearly 500 participants from all over the world in 2022 it is a well-established and leading forum in the field of plasma as well as ion- and particle-beam assisted surface modification and thin film technologies. PSE provides an opportunity to present recent progress in research and development and industrial applications. Its topics span a wide range from fundamentals such as e. g. process modelling and simulation of plasmas or thin film physics, through experimental studies which establish the relationships between process parameters and the structural and functional properties of modified surfaces and/or thin films, towards the application in industrial production.

With numerous industrial exhibitors and an exceptionally large fraction of participants from industry (46 % in 2022), a special feature of PSE is the intimate and vivid interaction between those being involved in basic research and those who have to meet the rapidly increasing demands in industrial production.

PSE 2024 will be dedicated to **»Plasma Surface Engineering enabling Sustainability«**. Our civilization is facing multiple challenges arising from our way of living in the past and at present. PSE 2024 with the scientists and technologists that constitute this conference, strive at being solution providers to society in this setting. The meeting is therefore dedicated to »Plasma Surface Engineering enabling Sustainability« with the aim of identifying sustainable technical solutions to pending problems that can be addressed with means typical for this conference series. Contributions are dedicated to topics covering a wide range of aspects such as surface-related solutions to energy-efficient process, design of materials for sustainable use, life-cycle assessment and other forms of scientific and technological advances.

Committees

European Joint Committee on Plasma Surface Engineering (EJC/PISE)
Michael Thomas (Chairman)
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38108 Braunschweig, Germany
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Fax: +49 531 215-59 00

Conference Chairman
Holger Kersten, Kiel (D)

Conference Co-Chairmen
Jörg Patscheider, Trübbach (CH)
Wonho Choe, Daejon (KR)
Thomas Müller, Wels (A)

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Sandra Carvalho, Coimbra (P)
Thierry Czerwiec, Nancy (F)
Sebastian Siol, Dübendorf (CH)
Daniel Lundin, Linköping (S)
Maik Fröhlich, Zwickau (D)
Jörg Patscheider, Trübbach (CH)
Pavel Baroch, Plzen (CZ)
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Dang Mau Chien, Vietnam
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Rajdeep Singh Rawat, Singapore
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We thank our partners for their support as Fair Cooperation Sponsor to stop price spirals. All service partners had increasing prices up to 37 %. The EFDS is a non-profit association, who does not plan with high outcomes. Our Fair Cooperation Sponsors support this Conference with a discount at the final invoice. This helps us to organize an economically viable conference with a good perspective for an ongoing cooperation also in future. That was important to keep the conference fees below 1,000 EUR.

CREATIVER MESSEBAU PÖKERT GmbH

MESSE ERFURT

Media Partner

Conference in Europe
www.conferenceineurope.net

Eugen G. Leuze Verlag KG,
Bad Saulgau/Württ., Germany
www.leuze-verlag.de
- Galvanotechnik | Fachzeitschrift
- PLUS – Elektronikfertigung | Fachzeitschrift

H₂YDROGEIT Verlag, Oberkrämer, Germany
www.hydrogeit.de

Hydrogen Power Storage & Solutions e.V.,
Halle, Germany
www.hypos-germany.de

HZwo e.V., Chemnitz, Germany
www.hzwo.eu

I.G.T. Informationsgesellschaft Technik
mbH, Ottobrunn bei München
www.oberflaeche.de
- Mo Magazin für Oberflächentechnik

WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany
www.wiley-vch.de
• Vakuum in Forschung und Praxis | Journal

WOTech GbR, Waldshut-Tiengen
www.wotech-technical-media.de/womag/
• WOMAG – Kompetenz in Werkstoff und funktioneller Oberfläche

ScienceDirect / Elsevier, Amsterdam, Netherlands
www.sciencedirect.com/journal/surface-and-coatings-technology
• Journal »Surface and Coating Technology«

Society of Vacuum Coaters, Albuquerque, USA
www.svc.org

Springer-Verlag GmbH, Berlin, Germany
www.springernature.com
• IST – International Surface Technology
• JOT – Journal für Oberflächentechnik

General Information

Conference Location
Messe Erfurt
Gothaer Straße 34
99094 Erfurt (Thuringia), Germany

Conference Phone
Phone: +49 (0) 361 4003000

Conference Office
You will find the conference office at the east entrance »Eingang Ost«.

Opening hours, September 1 – 5, 2024:

Sunday, Sept 1	16:00 to 18:00
Monday, Sept 2	07:30 to 18:00
Tuesday, Sept 3	07:30 to 18:00
Wednesday, Sept 4	07:30 to 18:00
Thursday, Sept 5	07:30 to 13:00

Car parking & Local Public Transport
A total of 3,500 parking spaces make the journey in your own car as convenient as possible. The fee for cars is 7,00 € per day. A ticket for local public transport is included in the Conference Registration. A special Sign will be visible at your conference Ticket.

Insurance

EFDS e. V. as organizer of the conference will not be responsible for any personal accidents or loss of as well as damage to private property of participants and accompanying persons which may occur during the conference. This also includes all evening events taking place in connection to the PSE 2024. Therefore, participants should contract their own insurance if they consider necessary.

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 and PSE. Please take notice, that we use also pictures from former PSE Conferences for communication and marketing. 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 **www.efds.org/de/datenschutz**.

Registration

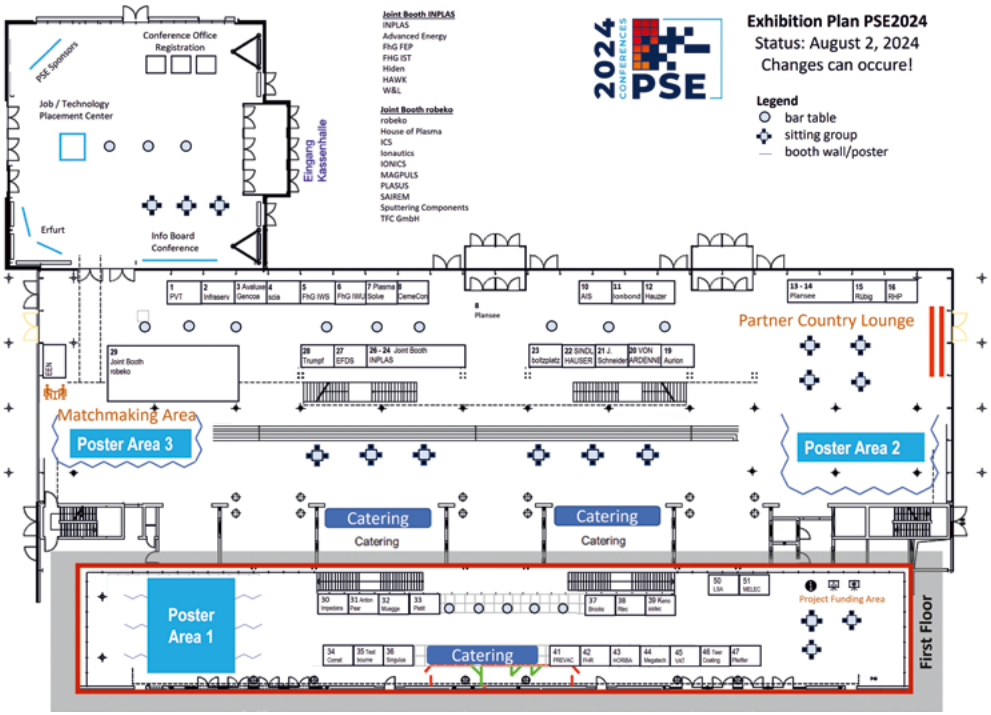
All participants at PSE2024 have to register onsite at the Conference Office first. The Trade Fair Erfurt can be entered with a valid PSE2024 Ticket only. You can find the registration in the »Kassenfoyer« of Entrance East.

Poster Arrangement

Please, hang your poster to the right position in Poster Area 1, 2 or 3 of Foyer Hall 1 in the morning of your event and take it away in the evening. The place will be marked with your Poster Conference Code (PO – Topic – XX). You can find your code in the program.

Poster Topics	Poster Area	Poster Session
P001XX | Plasma and Process Diagnostics	2	Tue, 9:00 – 10:00
P002XX | Physical vapour deposition PVD	1	Tue, 9:00 – 10:00
P003XX | Optical, electronic and magnetic coatings	1	Tue, 9:00 – 10:00
P004XX | Plasma Chemical Treatment & Coating	3	Tue, 9:00 – 10:00
P005XX | Modelling of Plasma processes and film growth	2	Tue, 20:00 – 21:00
P006XX | Protective and tribological surfaces	1	Tue, 20:00 – 21:00
P008XX | Environmental applications	2	Tue, 20:00 – 21:00
P012XX | Biomedical and agriculture applications	1	Wed, 9:00 – 10:00
P014XX | Analytics of film structures and properties	1	Wed, 9:00 – 10:00
P016XX | Other Plasma based Processes	1	Wed, 9:00 – 10:00
P017XX | Gas Conversion Processes	1	Wed, 9:00 – 10:00
P018XX | Plasma Treatment, Cleaning & Etching	2	Wed, 9:00 – 10:00
P020XX | Atomic layer & nanoparticle deposition	3	Wed, 9:00 – 10:00
P021XX | Batteries and green hydrogen	3	Wed, 9:00 – 10:00

Spatial Overview



Partner Country of PSE2024

In 2024 partner country of PSE2024 is Austria.

Austria is located in Central Europe, covers 83,000 sqm and is inhabited by over 9.1 million people. About two third of the area is covered by the Eastern Alps which is why Austria is referred to as a mountainous country.
In an international comparison, Austria is characterized by a high proportion of industry. This is characterized by highly developed mechanical engineering, numerous automotive suppliers and a number of large medium-sized companies that are highly specialized and in some cases world market leaders in their segment. This is also reflected in the field of plasma surface technology. Numerous well-known companies and renowned research institutes are based in Austria. Plasma surface engineering industry players from Austria will present themselves at the PSE Conference 2024 as part of the Partner Country Program. Get to know the Austrian community and visit companies and institutes in the exhibition. Furthermore, Austria is member in the collective Research Network CORNET. CORNET is a network of ministries and funding agencies that combine their existing funding schemes to increase competitiveness of Small and Medium-sized Enterprises (SMEs). In this way CORNET supports new funding organizations worldwide to introduce pilot actions and schemes for pre-competitive Collective Research.

Austrian Program Highlights

Partner Country Lounge – Austria

Tuesday – Wednesday, September 3 – 4, 2024 | Foyer Hall 1, Groundfloor, Booth 13 – 16

Partner Country Session

Tuesday, September 3, 2024 | 18:00 – 19:15 | Carl-Zeiss-Saal
Moderation: Thomas Müller, Rübig GmbH & Co. KG, Wels, Austria
Presentation of Austrian Partners & Plenary Lecture

»Responsible Surface Engineering for a Sustainable Future«
Christian Mitterer, Montanuniversität Leoben, Leoben, Austria

Opening of the Industrial Evening

Tuesday, September 3, 2024 | 19:30 | Foyer Hall 1, Ground floor, Partner Country Lounge
Moderation: Jörg Patscheider, Evatec AG, Switzerland
Presentation of Austrian Companies, Austrian Map & Austrian Surprise

Austrian Lunch Bufett

Wednesday, September 4, 2024 | 13:00 – 14:30 | Foyer Hall 1
During the lunch break, participants are spoiled to Austrian delicacies.

Further Details you can find in the Partner Country Brochure, presented during the industrial evening on September 3, 2024.

Impression of Participants at the Workshop »Energiewende – Wenn die Antwort in der Schicht steckt« 13. – 14. November 2023, Wels, Austria

PSE Awards

At PSE 2024 outstanding researchers will be honored with the PSE Awards. The PSE Leading Scientist Award is intended to highlight an approved researcher with pioneering contributions in science or technology of plasma and ion surface engineering. Beside this, three young researchers will be honored with the PSE Early Career Award for their work and engagement in the field.

PSE AWARD 2024 Session
Thursday, September 5, 2024 | 8:00 – 9:15 | Carl Zeiss Saal

8:00

Award Ceremony PSE Awards 2024
Moderation: Prof. Michael Thomas, Fraunhofer IST, Chairman of EJC/PISE, Germany

9:00

PSE Leading Scientist Award 2024 – Winners Lecture

»Glows, Arcs, Ohmic Discharges: Proposing an updated classification based on electron emission and power dissipation«
Prof. André Anders | Leibniz Institute of Surface Engineering (IOM) | Leipzig, Germany | Leipzig University | Faculty of Physics and Earth System Science | Leipzig, Germany

PSE Early Career Awards 2024

Keynote Lecture:
»Opportunities and challenges of compositional characterization with nanoscale spatial resolution using atom probe tomography«
KN1400 | Wednesday, September 4, 2022 | 10:00 – 10:30

Dr.-Ing. Marcus Hans
RWTH Aachen, Materials Chemistry, Germany

Oral Lecture:
»Towards in situ imaging of the plasma surface interaction utilizing a microplasma in a transmission electron microscope«
OR0104 | September 2, 2024 | 15:15 – 15:30

Dr. Luka Hansen
Chrisitian-Albrechts-Universität zu Kiel, Germany

Oral Lecture:
»Cellular Automaton simulation of complete structure evolution for nitrogen-expanded austenite phase formed by plasma-based low-energy ion implantation«
OR0508 | September 3, 2024 | 12:45 – 13:00

Dr. Honglong Che
Dalian University of Technology, China

PSE 2024 International Matchmaking (Hybrid)

The PSE 2024 – International Matchmaking is an important part of the International Conference on Plasma Surface Engineering in Erfurt (DE). The scheduled B2B-Meetings offer an ideal opportunity to identify potential cooperation partners and to establish interesting business contacts. Every participant selects his conversation partners individually and has 20 minutes to exchange about projects, products and services.

Advantages

- Publish & showcase your products, services and needs to interested players in and outside the conference
- Target potential business partners in pre-scheduled one-on-one meetings
- Initiate (cross-border) contacts and co-operations in a time and cost-efficient way
- Find new commercial / technological / research partners
- Get latest information on industrial related research results and trends
- As remote participant: find out if the whole event is a potential project for your organization's future

Further Information you can find at PSE 2024 Website
https://pse-2024-matchmaking.b2match.io/

This matchmaking event is organized by Enterprise Europe Network (EEN):
EEN supports small and medium-sized enterprises and research-related institutions on their way into international markets and projects. We offer practical and free support in the development and utilization of innovations, in accessing EU funding and in initiating international cooperation in the business, technology and project sectors. The network works on behalf of the EU Commission at around 600 institutions in 65 countries. We are well connected with industry and research clusters in Europe and beyond, can effectively disseminate your cooperation requests and offers internationally, and can also help with issues such as industrial property rights, public procurement and corporate sustainability.

Coffee Breaks & Conference Dinner

Throughout the conference, participants will be offered a lovingly prepared buffet with food and drinks during coffee and lunch breaks. The catering during the breaks is included in the entrance fee.

Monday, September 2, 2024 | all breaks in the Congress Center
Tuesday, September 3, 2024 | all breaks in the Foyer Hall 1
Wednesday, September 4, 2024 | all breaks in the Foyer Hall 1
Thursday, September 5, 2024 | all breaks in the Congress Center

Coffee Break Sponsors – PlasmaSolve & Oerlikon

Industrial Evening

Tuesday, September 3, 2024 | Foyer Hall 1 | 19:30 – 23:00

On the popular industry evening, all visitors, speakers and exhibitors meet for a relaxed get-together in the rooms of the industrial exhibition. Your culinary well-being will be taken care of. You can exchange ideas, talk and make new contacts while enjoying culinary delicacies. For your refreshment, Trumpf Hüttinger GmbH & Co. KG invites you to a freshly tapped beer, while other drinks are also available.

Beer Sponsor – Trumpf Hüttinger GmbH & Co. KG

Conference Dinner

Wednesday, September 4, 2024 | Kaisersaal Erfurt, Futterstraße 15/16, 99084 Erfurt | 19:00 – 22:30

In the festive ambience of the Kaisersaal, in the inner city of Erfurt, you can get into conversation with your partners and colleagues. Enjoy the great environment in the style of classicism as well as your menu from the delicious buffet. An exclusive opportunity for conversations and in-depth discussions.

Dessert Sponsor – Shimadzu / Infaserv Vakuumservice GmbH

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PSE 2024 PROGRAM

An overview about the program of PSE 2024 you can find in the appendix at page 123.

September 2, 2024

9:00 – 13:00 | Carl Zeiss Saal right
TUTORIAL | Diagnostics for Plasma Technologies
Supported by scia Systems GmbH, Kontron AIS GmbH and IHI Ionbond AG.

9:00		**Welcome Words** Peter Awakowicz (Ruhr-Universität Bochum, Bochum, Germany)
9:10	TUT-02-01	**The Multipole Resonance Probe – Description and Evaluation of an Industrial Measurement Technology** Moritz Oberberg (House of Plasma GmbH, Bochum, Germany)
9:50	TUT-02-02	**Self Excited Electron Resonance Spectroscopy** Michael Klick (Plasmetrex GmbH, Berlin, Germany)
10:30	TUT-02-03	**Optical Emission and Absorption Spectroscopy: A (short) Tutorial** Volker Schulz-von der Gathen (Ruhr-University Bochum, Bochum, Germany)
11:10		**Coffee Break**
11:40	TUT-02-04	**Laser spectroscopy to characterise low and atmospheric pressure plasmas** Jean-Pierre H. van Helden (Leibniz Institute for Plasma Science and Technology (INP), Greifswald, Germany)
12:20	TUT-02-05	**Quadrupole mass spectrometry of reactive neutral species and ions in plasmas.** Jan Benedikt (Kiel University, Kiel, Germany)

9:30 – 13:00 | Carl Zeiss Saal left

TUTORIAL | Fundamentals and Trends of Plasma Surface Engineering

Supported by scia Systems GmbH, Kontron AIS GmbH and IHI Ionbond AG.

9:30	TUT-01-01	**Modeling and Simulation of Technical Plasmas** Ralf Peter Brinkmann (Ruhr-Universität Bochum, Bochum, Germany)
10:15	TUT-01-02	**The role of ion bombardment for thin film deposition: Basics and diagnostics (Tutorial)** Holger Kersten (CAU Kiel, Kiel, Germany)
11:00		**Coffee Break**
11:30	TU-01-03	**Fundamental and Trends of Plasma Surface Processing – Surface engineering with atmospheric pressure plasmas** Michael Thomas (Fraunhofer-Institut für Schicht- und Oberflächentechnik IST, Braunschweig, Germany)
12:15	TUT-01-04	**Plasma Treatment of Polymers and Plasma Polymerization** Dirk Hegemann (Empa, St.Gallen, Switzerland)

9:30 – 13:00 | Christian-Reichard Saal

TUTORIAL | Fundamentals and Trends for Gas Conversion

Supported by scia Systems GmbH, Kontron AIS GmbH and IHI Ionbond AG.

9:30		**Welcome Words**
9:35	TUT-03-01	**An introduction to plasma-based gas conversion** Ramses Snoeckx (Empa, Swiss Federal Laboratories for Materials Science and Technology, St. Gallen, Switzerland)
11:00		**Coffee Break**
11:30	TUT-03-02	**The role of spectroscopic diagnostics in understanding of the plasma-based gas conversion and synthesis.** Nikolay Britun (Nagoya University, Nagoya, Japan)
12:55		**Final Comments**

14:00 – 17:15 | Carl Zeiss Saal left

SESSION 1 | Plasma and process diagnostics

14:00	KN0100	**Non-invasive diagnostics for characterizing conditions at plasma electrodes during thin film growth** Daniel Lundin (Linköping University, Linköping, Sweden)
14:30	OR0101	**Theoretical and Experimental Characterization of a Miniaturized Microwave-Driven Plasma Jet** Ralf Peter Brinkmann (Ruhr-University Bochum, Bochum, Germany)
14:45	OR0102	**Spatio-temporal characterization of the gaseous layer during plasma electrolytic polishing process** Sehoon An (Leibniz Institute for Plasma Science and Technology, Greifswald, Germany)
15:00	OR0103	**Multi-ratio Ar-based actinometry for obtaining F, O, H, N and P atomic number densities.** Nikolay Britun (Nagoya University, Nagoya, Japan)
15:15	OR0104	**PSE EARLY CAREER AWARD LECTURE	Towards in situ imaging of the plasma surface interaction utilizing a microplasma in a transmission electron microscope** Luka Hansen (Kiel University, Kiel, Germany)
15:30		**Break**
16:00	OR0105	**Enhancing Ionized Metal Flux Fraction in Laboratory and Industrial Magnetron Sputtering – Results, Insights, and Optimization Strategies** Petr Vasina (Masaryk University, Brno, Czech Republic)
16:15	OR0106	**Active thermal probe for direction-dependent measurement of the energy influx** Thomas Wiese (Ampower Science an Engineering GmbH, Forchheim, Germany)

16:30 **OR0107**

A reverse discharge during positive voltage pulses in bipolar high-power impulse magnetron sputtering
Andrea D. Pajdarová (University of West Bohemia, Plzen, Czech Republic)

16:45 **OR0108**

Continuous Pulse-resolved Spectroscopic and Electrical Plasma Monitoring for Process Control in HIPIMS and Pulsed Sputtering Applications
Thomas Schütte (PLASUS GmbH, Mering, Germany)

17:00 **OR0109**

Characterization of hybrid HiPIMS+controlled arc deposition process: IEDF and ion flux during DLC deposition
Martin Cada (Institute of Physics of the Czech Academy of Sciences, Prague 8, Czech Republic)

14:00 – 17:15 | Carl Zeiss Saal right
SESSION 2 | Physical vapour deposition PVD I
Supported by CemeCon AG.

14:00	KN0200	**On the relation between the self-sputter yield and deposition rate in high power impulse magnetron sputtering** Jon T. Gudmundsson (University of Iceland, Reykjavik, Iceland)
14:30	OR0201	**Metal-Ion Synchronized HiPIMS of AlN and AlScN for piezoelectric applications** Jyotish Patidar (Empa, Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland)
14:45	OR0202	**Stable hybrid HiPIMS/RF sputtering process in one source for arc-free deposition of compact oxide layers** Alexander Fromm (Fraunhofer-Institut für Werkstoffmechanik, IWM, Freiburg, Germany)
15:00	OR0203	**Tuning the film properties on insulating substrates using multi-pulse bipolar HiPIMS** Jiří Čapek (University of West Bohemia, Plzeň, Czech Republic)
15:15	OR0204	**High-power-density sputtering of industrial-scale targets** Fedor F. Klimashin (Empa – Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland)
15:30		**Break**
16:00	OR0205	**Early-Stage Growth of Silver on Polystyrene deposited by DCMS, HiPIMS and Bi-Polar HiPIMS** Kristian A. Reck (Kiel University, Kiel, Germany)
16:15	OR0206	**Enhancing Reactive HiPIMS Process Control: A Method for Large Targets and Diverse Parameters** Joel Fischer (Evatec AG, Trübbach, Switzerland)

16:30 **OR0207**
High Plasmonic Quality TiN and TiN/NbN Films Deposited by High Power Impulse Magnetron Sputtering
Arutiun P. Ehiasarian (Sheffield Hallam University, Sheffield, UK)

16:45 **OR0208**
A hybrid HiPIMS/PECVD process for hydrogenated amorphous carbon using toluene precursors
Kerstin Thorwarth (Empa – Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland)

17:00 **OR0209**
Aspects of industrial applications of HiPIMS solutions for protective coatings
Jörg Vetter (J. Vetter-S3-consulting, Bergisch Gladbach, Germany)

14:00 – 17:15 | Christian-Reichard Saal
SESSION 3 | Optical, electronic and magnetic coatings I
Sponsored by robeko GmbH & Co. KG.

14:00 **KN0300**
Reactive Sputter Deposition of $ZnGeN_2$ films on GaN Buffers
Stefan Seeger (Optotransmitter-Umweltschutz-Technologie e.V., Berlin, Germany)

14:30 **OR0301**
In-flight synthesis of SiN-covered ZrN nanoparticles for tunable plasmonics with enhanced stability
Mariia Protsak (Charles University, Prague, Czech Republic)

14:45 **OR0302**
Transparent high permeation barrier coatings for flexible large area opto electronics
Patrick Schlenz (Fraunhofer FEP, Dresden, Germany)

15:00 **OR0303**
ITO-free transparent plasmonic nano-electrodes via Ar Plasma irradiation for large area and flexible architectures.
Giulio Ferrando (University of Genoa, Genova, Italy)

15:15 OR0304

Exceptional stability at high-temperature in-air of solar absorbers based on aluminium titanium oxynitride nanocomposite coatings
Ramón Escobar-Galindo (Universidad de Sevilla, Seville, Spain)

15:30 **Break**

16:00 OR0305

High-performance thermochromic VO_2-based smart coatings deposited on glass by a scalable technique
Jaroslav Vlček (University of West Bohemia, Plzeň, Czech Republic)

16:15 OR0306

Hydrogen Leak detection by fiber optic sensors developed by pasma techniques
Santiago Domínguez-Meister (TECNALIA, Basque Research and Technology Alliance (BRTA), Donostia-San Sebastian, Spain)

16:30 OR0307

Optimization and application of HiPIMS hafnium oxynitride (HfO_xN_y) thin films in MOS structures.
Miroslaw Puzniak (TRUMPF Huettinger Sp z o. o., Warsaw, Poland)

16:45 OR0308

Sputter deposited Aluminumoxynitride films for applications as electrically isolating, thermally conductive films
Hagen Bartzsch (Fraunhofer FEP, Dresden, Germany)

17:00 OR0309

Resistive switching dynamics in fluidic Ag-polyethylene glycol composites prepared by cluster-beam deposition
Daniil Nikitin (Charles University, Prague, Czech Republic)

18:00 – 19:00 | Carl Zeiss Saal
Plenary / Opening Session
Supported by boltzplatz – numerical plasma dynamics.

18:00		**Opening of PSE2024**
18:15	**PL0100**	**Plasma in Motion** Michael Zeuner (scia Systems GmbH, Chemnitz, Germany)

September 3, 2024

8:00 – 8:45 | Carl Zeiss Saal
Plenary Session

8:00 **PL0200** **Plasma Activation, Plasma Deposition and Beyond**
Dirk Hegemann (Empa, Swiss Federal Laboratories for Materials Science and Technology, St.Gallen, Switzerland)

9:00 – 10:00 | Foyer Hall 1
Poster Session 1

- Plasma and process diagnostics (P001XX) – Poster Area 2
- Physical vapour deposition PVD (P002XX) – Poster Area 1
- Optical, electronic and magnetic coatings (P003XX) – Poster Area 1
- Plasma Chemical Treatment & Coating (P004XX) – Poster Area 3

P00101 **Plasma diagnostics in a pulsed reactive magnetron sputtering system during the deposition of thin semiconductor oxide thin films.**
Zdenek Hubicka (Institute of Physics Czech Academy of Sciences, Na Slovance 2, Prague 8, Czech Republic)

P00102 **Ion Mass-Energy Analysis and Fluid Mechanical Simulations of the Cathodic Arc Ti-N Plasma**
Nikolaos Giochalas (Linköping University, Linköping, Sweden)

P00103 **Octiv VI probes for optimization of plasma assisted surface engineering processes**
Angus McCarter (Impedans Ltd., Dublin, Ireland)

P00104 **Measurement of the sheath thickness in single and dual capacitively coupled radio frequency discharges**
Daniel Zuhayra (Christian-Albrechts-Universität, Kiel, Germany)

P00105 **On bipolar HiPIMS pulse configurations to enhance energy and ion flux to insulating substrates**
Mina Farahani (University of West Bohemia, Plzen, Czech Republic)

P00106 **Investigation of charge exchange collisions in an ion beam.**
Philipp G. J. Kropidlowski (Cau University Kiel, Kiel, Germany)

P00107 **RF pulsed active screen plasma used for nitriding process. Comparison between optical plasma diagnostics and treatments of stainless steel**
Arthur Hellé (Université de lorraine/CNRS, Nancy, France)

P00108 **Plasma and energy flux characterization in high power impulse magnetron sputtering**
Caroline Adam (Kiel University, Kiel, Germany)

P00109 **Structural Characteristics, Electrical Conductivity, and Optical Properties of Low-Energy Ion-Beam Irradiated Flexible PVA/ZnO Nanocomposite Films**
Haifa A. Alyousef (Princess Nourah bint Abdulrahman, Riyadh, Saudi Arabia)

P00110 **Magnetron sputtering with controlled primary ion energy**
Hermann Schlemm (Jenion, Milda, Germany)

P00111 **Insight into plasma polymerization with the significant contribution of ions towards deposition and etching balance**
Lenka Zajíčková (Brno University of Technology, Brno, Czech Republic)

P00112 **Numerical Analysis of Periodic Characteristics in Atmospheric Pressure Inductively Coupled Argon Plasma**
Xinyang Wei (Osaka University, Suita, Japan)

P00201 **2D materials based on Sc/C prepared by magnetron sputtering**
Martin Kormunda (J. E. Purkyne Univerzity, Usti nad Labem, Czech Republic)

P00202 **Crystalline structure and optical properties of cobalt nickel oxide thin films deposited with a pulsed hollow cathode discharge in an Ar+O_2 gas mixture.**
Rainer Hippler (Czech Academy of Sciences, Praha, Czech Republic)

P00203 **Magnetron Sputtered $Cr_{1-x}Nb_x$ coatings: Microstructure and mechanical properties**
Jan-Ove Söhngen (Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany)

P00204 **$Al_xTa_yO_z$ thin films deposited by pulsed direct current reactive magnetron sputtering for dielectric applications**
Richard Drevet (Masaryk University, Brno, Czech Republic)

P00205 **Combining cathodic ARC evaporation and magnetron sputtering – Targeted modification of the coating properties using Design of Experiments**
Hannes Joost (GFE - Gesellschaft für Fertigungstechnik und Entwicklung Schmalkalden e.V., Schmalkalden, Germany)

P00206 **Effect of angular ion bombardment by pulsed arc on properties of pure and doped ta-C**
Ivailo Dolchinkov (IHI Ionbond AG, Olten, Switzerland)

P00207 **Structural, mechanical and corrosion resistance of Phosphorus-doped TiAlN thin film**
Anas Ghailane (Avaluxe Coating Technologies, 90763 Fürth, Germany)

P00208 **Influence of the deposition parameters on the film texture of tungsten (W) thin films prepared by DC magnetron sputtering**
Farzaneh Ahangarani Farahani (Gent University, GENT, Belgium)

P00209 **Microstructures and mechanical properties of nanocomposite coatings deposited by using single alloy targets**
Kyoung Il Moon (Korea Institute of Industrial Technology, Siheung-si, South Korea)

P00210 **Quantifying the impact of process parameters in arc evaporation processes on the structural and mechanical properties of titanium-based nitride ceramics for medical applications**
Henry Dempwolf (DOT GmbH, Rostock, Germany)

P00211 **Sputter epitaxy of $Zn_{1-x}Mg_xO$ films on 18 %-lattice mismatched sapphire substrates using 3D island buffer layers fabricated at high deposition rate**
Hiroki Otsuyama (Kyushu University, Fukuoka, Japan)

P00212 **Sputter epitaxy of $(ZnO)_x(InN)_{1-x}$ films on sapphire substrates via inverted Stranski-Krastanov mode: effects of morphology of 3D buffer laye**
Shotaro Hata (Kyushu Univ, Fukuoka, Japan)

P00213 **Focused Magnetron Sputtering: A High-Density Coating Deposition for Industrial Applications**
Erik Jankes (Platit a.s., Sumperk, Czech Republic)

P00214 **Low-temperature growth of $(ZnO)_x(InN)_{1-x}$ films on ZnO substrates by magnetron sputtering in $Ar/N_2/O_2$**
Ryota Narishige (Kyushu University, Fukuoka, Japan)

P00215 **Helium-Assisted Glancing Angle Deposition of Thin Films of $TiCuO_x$ and WO_x for Conductometric Hydrogen Sensing**
Akash Kumar (University of West Bohemia, pilsen, Czech Republic)

P00216 **Effect of power delivery on ITO sputter process and thin film properties**
Gayatri Rane (Advanced Energy Industries, Karlstein am Main, Germany)

P00217 **Deposition of TiAlC and TiAlCN coatings in organometallic compound enriched arc plasma stream, MOPVD-Arc technology.**
Weronika Goluch (Łukasiewicz Research Network, Warsaw, Poland)

P00218 **Copper- and silicon layers, sputtered with a magnetron with controlled primary ion energy**
Hermann Schlemm (Jenion, Milda, Germany)

P00301 **Temperature monitoring sensors on complex surfaces based on non critical multi-layered materials deposited by magnetron sputtering.**
Santiago Domínguez Meister (TECNALIA, Basque Research and Technology Alliance (BRTA), Donostia-San Sebastián, Spain)

P00302 **Performance and durability of solar selective coatings based on CrAlN multilayers under solar radiation exposure**
Juan Carlos Sánchez-López (CSIC, Sevilla, Spain)

P00303 **Retaining crystallinity of as-deposited thermoelectric Fe_2VAl-based thin films grown from DCMS and HiPIMS**
Ludwig Enzlberger (TU Wien, Vienna, Austria)

P00304 **A low-temperature synthesis of strongly thermochromic W and Sr co-doped VO_2 films with a low transition temperature**
Sadoon Farrukh (University of West Bohemia, Plzen, Czech Republic)

P00305 **The effect of nitrogen doping on electrical and optical properties of Cu_2O films prepared by high-rate reactive high-power impulse magnetron sputtering**
Jan Koloros (University of West Bohemia, Univerzitní 8, 301 00 Plzeň, Czech Republic)

P00306 **Titanium dioxide thin film photoconductive sensor for direct conversion of optical to electrical signals in hybrid scintillators**
Jiri Olejnicek (Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic)

P00401 **Polymer/metal composite deposition using Atmospheric Pressure Plasma Enhanced Chemical Vapor Deposition**
Paul Lottin (ECAM RENNES – Louis de Broglie, Bruz, France)

P00402 **Introducing an Innovative Plasma-Enhanced Chemical Vapor Deposition Technology for Long-Lasting Fluor-Free Hydrophobic Coatings**
Grégory Arnoult (AGC Glass Europe S.A., Gosselies, Belgium)

P00403 **Influence of Voltage on the Compound Layer**
Christian Kipp (TU Braunschweig, Braunschweig, Germany)

P00404 **Optimization of laser-induced plasma for facilitating the open atmosphere laser nitriding on titanium surface**
Atsuto Yoshino (Kitami Institute of Technology, Kitami, Japan)

P00405 **Effects of Ion Energy and Ion Flux on a-C:H Film PECVD Deposition Studied using Tailored Voltage Waveform Discharges**
Daichi Wakita (Kyushu University, Fukuoka-shi, Japan)

P00406 **Revolutionizing Surfaces: Unlock the Power of Hydrophobic Plasma-Polymerized Vegetable Oils**
Martin Bellmann (HAWK, Göttingen, Germany)

P00407 **Effects of Ne Gas Addition on Film Quality in Ar+C_2H_2 PECVD Deposition**
Kizuku Ikeda (Kyushu University, Fukuoka-shi, Japan)

P00408 **Detailed investigation of AISI 316L stainless steel surface after solid carbon active screen plasma nitrocarburizing**
Darina Manova (Leibniz Institute of Surface Engineering (IOM), Leipzig, Germany)

P00409 **Barrier coatings deposited via PA-CVD and MS-PVD on recyclable polymer foils for food packaging applications**
Francisco A. Delfin (University of Applied Sciences Upper Austria, Wels, Austria)

P00410 **Plasma nitriding of 41CrAlMo7-10 steel in 30 mm diameter pipe, emission spectrum and plasma temperature characteristics of 70N2-30H2 as a function of process pressure change.**
Weronika Goluch (Łukasiewicz Research Network, Warsaw, Poland)

P00411 **Wear and corrosion behaviour of short time plasma nitrocarburized AISI 316L**
Eugenia L. Dalibon (National University of Technology, Concepción del Uruguay, Argentina)

P00412 **Characteristic variation of the focused pulsed laser-irradiated titanium surface in N_2-O_2 atmosphere with different mixture ratio.**
Kaito Yonemoto (Kitami Institute of Technology, Kitami, Japan)

P00413 **Adhesion of thin PECVD barrier films on post-consumer recycled polypropylene**
Hendrik Müller (Paderborn University, Paderborn, Germany)

P00414 **Atmospheric gliding arc plasma deposition: A novel tool to selectively change the wettability, roughness and surface chemistry of substrates**
Thomas D. Michl (Fachhochschule Nordwestschweiz FHNW, Windisch, Switzerland)

10:00 – 13:00 | Carl Zeiss Saal left
SESSION 4 | Plasma Chemical Treatment & Coating

10:00 KN0400 **Evaluation of thin film properties to reduce sticking of pharmaceutical powders on punches for tablet compression**
Kristina Lachmann (Fraunhofer Institute for Surface Engineering and Thin Films, Braunschweig, Germany)

10:30 OR0401 **Development of a R2R-system for plasma polymer coatings with debonding on demand properties for low-temperature bonding on bio-based materials**
Michael Thomas (Fraunhofer-Institut für Schicht- und Oberflächentechnik IST, Braunschweig, Germany)

10:45 OR0402 **Investigating the influence of the substrate temperature on the growth mechanisms of oxygen-based plasma polymer films**
Robin Dantinne (University of Mons (UMons), Mons, Belgium)

11:00	OR0403	**Co_3O_4 synthesis by AP-PECVD for electrocatalytic applications** João G. Mallmann (Luxembourg Institute of Science and Technology, Esch-sur-Alzette, Luxembourg), Project has been funded by CEA (ATMOSPHERE), in collaboration with Genvia.
11:15	OR0404	**Atmospheric-pressure plasma enhanced chemical vapor deposition of size agents on glass fibers for glass-reinforced plastics** Mariagrazia Troia (University of Stuttgart, Stuttgart, Germany)
11:30		**Break**
12:00	OR0405	**Effectiveness of surface activation induced by different mechanisms during plasma nitrocarburizing of AISI 316L** Saeed M. Jafarpour (Technische Universität Bergakademie Freiberg, Freiberg, Germany)
12:15	OR0406	**Overview of nitriding behaviour of austenitic, duplex and precipitation hardening steel using in-situ x-ray diffraction** Darina Manova (Leibniz Institute of Surface Engineering (IOM), Leipzig, Germany)
12:30	OR0407	**Functionalization of Hemp Fabric using Silane by Physical and Chemical Treatment and Mechanical Characterization of Functionalized Fabric Reinforced Composites** Siva Kaylasa Sundari Saravanamuthu (Kompetenzzentrum Holz GmbH, St Veit an der Glan, Austria)
12:45	OR0408	**Carbon nanostructures produced by means of pulsed DC PACVD** Francisco A. Delfin (University of Applied Sciences Upper Austria, Wels, Austria)

10:00 – 13:00 | Carl Zeiss Saal right

SESSION 5 | Modelling of plasma processes and film growth

10:00	KN0500	**Applications of machine learning to process development and control** Satoshi Hamaguchi (Osaka University, Osaka, Japan)
10:30	OR0501	**Electron dynamics in sputtering discharges with magnetic field gradients along their racetrack** Fabian Manke (EVATEC AG, Trübbach, Switzerland)
10:45	OR0502	**First steps to greybox modeling for wear prediction of PVD coated carbide cutting tools** Muhammad Tayyab (RWTH Aachen University, Aachen, Germany)
11:00	OR0503	**Photocurrent generation by PVD-coated complex 3D foams: an experimental & modelling study** Loris Chavée (University of Namur, Namur, Belgium)
11:15	OR0504	**Simulation and optimization for coating processes and coaters** Dennis Barton (Fraunhofer Institute for Surface Engineering and Thin Films IST, Braunschweig, Germany)
11:30		**Break**
12:00	OR0505	**Extension of the Magnetron Sputtering Modeling Using Particle Methods for 3D Simulation of Gas Phase Dynamics during Coating Processes** Julian Beyer (boltzplatz – numerical plasma dynamics GmbH, Stuttgart, Germany)

12:15 **OR0506**

Molecular Dynamics Insights into the Crystallization of Amorphous Metals
Prashant Dwivedi (Czech Technical University in Prague, Prague, Czech Republic)

12:30 **OR0507**

Simulation of an ion beam extraction from an ICP by using a self-consistent plasma sheath model.
Kevin M. Rettig (scia Systems GmbH, Chemnitz, Germany)

12:45 **OR0508**

PSE EARLY CAREER AWARD LECTURE |
Cellular Automaton simulation of complete structure evolution for nitrogen-expanded austenite phase formed by plasma-based low-energy ion implantation
Honglong Che (Dalian University of Technology, Dalian, China)

10:00 – 13:00 | Christian-Reichard Saal

SESSION 6 | Protective and tribological surfaces I

Supported by CemeCon AG.

10:00	KN0600	**The synergy between carbon-based TMD-sputtered coatings and laser surface treatment for low friction and wear resistance** Albano Cavaleiro (University of Coimbra, Coimbra, Portugal)
10:30	OR0601	**Eco-Sustainable Corrosion Protection: New developments in magnetron sputtering of refractory metal magnesium nitride coatings** Martin Fenker (fem Forschungsinstitut, Schwäbisch Gmünd, Germany)
10:45	OR0602	**Surface engineering of ta-C coatings by ion implantation** Aurelio Garcia-Valenzuela (Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany)
11:00	OR0603	**ta-C wear protection coatings on plastic components** Frank Kaulfuss (Fraunhofer IWS, Dresden, Germany)
11:15	OR0604	**Wet and dry tribological behaviour of ZrCN coatings for mountain bike chains** Diogo Cavaleiro (University of Coimbra, Coimbra, Portugal)
11:30		**Break**
12:00	OR0605	**Research on thick film ta-C coating process of cutting tools for CRFP machining using filter cathode vacuum arc deposition.** Jongkuk Kim (Korea Institute of Materials Science, Changwon, South Korea)
12:15	OR0606	**Exploring the phase space and oxidation mechanisms of TM-X-C thin films** Sophie Richter (TU Wien, Vienna, Austria)

12:30	OR0607	**Effect of Mo-N-Cu concentration in thick diamond-like carbon (DLC) coatings on their mechanical and tribological properties** Young-Jun Jang (Korea Institute of Materials Science, Changwon, South Korea)
12:45	OR0608	**Effect of doping tetrahedral amorphous carbon on oxidation and temperature stability** Martin Zawischa (Fraunhofer Institute for Material and Beam Technology IWS, Dresden, Germany)

10:00 – 15:45 | Panorama Saal
Industrial Workshop | Plasma Surface Engineering enabling Sustainability

10:00	KN0701	**Carbon-based PVD Coating Solutions for a Sustainable Future** Ivan Kolev (IHI Hauzer Techno Coating B.V., Venlo, Netherlands)
10:30	IW0701	**Sustainable and Economical Production of High-Quality HiPIMS Coatings** Stephan Bolz (CemeCon AG, Würselen, Germany)
10:45	IW0702	**PVD Coatings for Lightweight Proton-Exchange Fuel Cell (PEMFC) Bipolar Plates** Parnia Navabpour (Teer Coatings Limited, Droitwich, UK)
11:00	IW0703	**PVVD Coatings for Hydrogen Applications and their Commercial Realization** Klaus Böbel (Oerlikon Surface Solutions AG, Balzers, Germany)
11:15	IW0704	**Development of an Atmospheric Pressure Plasma Reduction inline process as green alternative to solve delamination and improve bonding in Electronics** Dhia Bensalem (Plasmatreat GmbH, Steinhagen, Germany)

11:30		**Break**
12:00	**IW0705**	**Cost effective high performance coatings for the Hydrogen – Economy Mass production of coatings for fuel cells and electrolyzers** Herbert Gabriel (PVT Plasma und Vakuum Technik GmbH, Bensheim, Germany)
12:20	**IW0706**	**Towards more sustainable high performance cutting tools; reprocessing and dedicated coating solutions** Hamid Bolvardi (PLATIT AG, Selzach, Switzerland)
12:40	**IW0707**	**Plasma nitriding and PACVD (Plasma Assisted CVD) coating as complementary technology for PVD for wind power gear boxes** Thomas Mueller (Rübig GmbH&Co KG, Wels, Austria)
13:00		**Break**
14:30	**KN0702**	**Big Data in Surface Technology – and what to do with it!** Holger Gerdes (Fraunhofer IST, Braunschweig, Germany)
15:00	**IW0708**	**Coating Prediction on Complex 3D Parts: Quantifying the Effects of Fixture Design, Process Type, and Coater Loading** Petr Zikán (PlasmaSolve s. r. o., Brno, Czech Republic)
15:15	**IW0709**	**Pressure-Induced Phenomena in Magnetron Sputtering** Pavel Mareš (HVM PLASMA, Praha 5, Czech Republic)
15:30	**IW0710**	**Prerequisites for low-defect density magnetron sputtering of active semiconducting films: an overview** Klaus Ellmer (Optotransmitter-Umweltschutz-Technologie e. V., Berlin, Germany)

14:30 – 17:15 | Carl Zeiss Saal left

SESSION 8 | Environmental applications

14:30	KN0800	**Concepts for the direct recycling/re-use of end-of-life sputtering targets in PVD applications** Erich Neubauer (RHP Technology GmbH, Seibersdorf, Austria)
15:00	OR0801	**Magnetron-sputtered thin films enabling heat transfer enhancement in electrocaloric heat pumps** Maria Barrera Marin (Fraunhofer FEP, Dresden, Germany)
15:15	OR0802	**Sputter deposited CuO-WO_3 Nanostructures for Gas Sensing Application** Nirmal Kumar (University of West Bohemia, Pilsen, Czech Republic)
15:30	OR0803	**Development of manufacturing process sequences for coated metallic bipolar plates used for fuel cells of the highest quality and energy efficiency. Project: »BPP-Schicht« (IGF 20/11)** Nils Fredebeul-Beverungen (Fraunhofer-Institut für Werkstoff- und Strahltechnik IWS, Dortmund, Germany)
15:45		**Break**
16:15	OR0804	**Hybrid coatings containing Ag+/titania deposited by aerosol assisted atmospheric pressure plasma for photocatalytic applications** Fabio Palumbo (Consiglio Nazionale delle Ricerche, Bari, Italy)
16:30	OR0805	**Bio-derived sorbents nanoengineered via Atomic Layer Deposition for cooperative photocatalysis** Sara Lotito (University of Bari Aldo Moro, Bari, Italy)

16:45	OR0806	**High-rate deposition of Al-Mo multilayers and their potential for corrosion protection** Fred Fietzke (Fraunhofer FEP, Dresden, Germany)
17:00	OR0807	**Enhanced Photocatalytic Degradation of Pharmaceutical Pollutants in Wastewater Using Air Plasma-Treated g-C_3N_4 and Peroxymonosulfate** Tomáš Homola (Slovak University of Technology, Bratislava, Slovakia)

14:30 – 17:15 | Carl Zeiss Saal right
SESSION 9 | Physical vapour deposition II
Supported by robeko GmbH & Co. KG.

14:30	KN0900	**Sputtering onto liquids for the synthesis of nanoparticle suspensions and beyond** Stephanos Konstantinidis (University of Mons, Mons, Belgium)
15:00	OR0901	**Impact of Discharge Type (Pulsed vs. DC) on Nanoparticle Size During Magnetron Sputtering onto Liquid Substrates** Soumya Atmane (GREMI, Orleans, France)
15:15	OR0902	**Influence of Powder Material Selection on the Synthesis & Production of High-Entropy Alloy Targets for Thin Film Applications** Lukas Zauner (RHP-Technology GmbH, A-2444 Seibersdorf, Austria)
15:30	OR0903	**Real-time in-situ resistance measurements, to study thin film nucleation during magnetron sputtering** Andreas Debrabandere (Ghent University, Gent, Belgium)
15:45		**Break**
16:15	OR0904	**Design of an Innovative Cathodic Arc Source With High Deposition Rate and Low Macroparticles Generation** Raül Bonet (Eurecat, Centre Tecnològic de Catalunya, Manresa, Spain)

16:30 **OR0905**

Hybrid combination of magnetron sputtering and cathodic ARC to tune thermal and mechanical properties different alloyed diboride coatings
Hannes Joost (GFE – Gesellschaft für Fertigungstechnik und Entwicklung Schmalkalden e.V., Schmalkalden, Germany)

16:45 **OR0906**

Novel Approach in Cathodic Arc Evaporation Enabling Precise Control Over Energy of Deposited Ions in Industrial Conditions
Martin Učík (Masaryk University, Brno, Czech Republic)

17:00 **OR0907**

Large area antipathogenic surfaces based on crystalline TiO2 thin films processed by PVD in combination with Inline Flash Lamp Annealing
Thomas Preußner (Fraunhofer-Institute for Organic Electronics, Electron Beam and Plasma Technology FEP, Dresden, Germany)

14:30 – 17:15 | Christian-Reichard Saal
SESSION 10 | Optical, electronic and magnetic coatings II
Supported by CemeCon AG.

14:30 **KN1000**

Various strategies for improvement of electrical and optical properties of Cu_2O-based p-type TCOs
Pavel Baroch (University of West Bohemia, Plze, Czech Republic)

15:00 **OR1001**

Aluminum doped zinc oxide thin films deposited by rotatable magnetron sputtering
Eugen Stamate (Technical University of Denmark, Kgs. Lyngby, Denmark)

15:15 **OR1002**

Optical Characterisation of Silicon Oxide Coatings Deposited by Microwave – Plasma Enhanced Chemical Vapour Deposition
Atreya Danturthi (University of Leeds, Leeds, UK)

15:30	OR1003	**Sputter deposited silver niobate thin films: pathway towards phase purity** Lukas Kölbl (Montanuniversität Leoben, Leoben, Austria)
15:45		**Break**
16:15	OR1004	**Highly sensitive LSPR sensor with Ag-Cu nanoparticles for selective detection** Pavel Curda (University of South Bohemia, Ceske Budejovice, Czech Republic)
16:30	OR1005	**Low loss subwavelength structures and their potential for future applications** Anne Gärtner (Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Jena, Germany)
16:45	OR1006	**High-temperature in-air stability and defect structure of transparent conductive oxide SnO_2:Ta** Matthias Krause (Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany)
17:00	OR1007	**HIPIMS reactive metal oxides nanocoating for resistive random-access memory application** Piotr Różański (TRUMPF Huettinger Sp. z o. o., Zielonka, Poland)

16:15 – 17:45 | Panorama Saal
SESSION 11 | Vacuum Session
This session is organized by
the Deutschen Vakuum-Gesellschaft DVG e.V..

16:15	OR1101	**Neutrino research with KATRIN** Dominic Hinz (Karlsruher Institut für Technologie (KIT), Institut für Astroteilchenphysik (IAP), Karlsruhe, Germany)
16:55		**Laudatio & Award Ceremony** Sven Ulrich (President of Deutsche Vakuum-Gesellschaft DVG e.V., Germany)
17:05	OR1102	**AWARD LECTURE - Rudolf-Jaeckel-Preis 2024	Pioneering work on the development and establishment of cathodoluminescence** Jürgen Christen (Otto von Guericke Universität Magdeburg, Magdeburg, Germany)

18:00 – 19:15 | Carl Zeiss Saal
Plenary – Partner Country Session

18:00		**AUSTRIA	Presentation of the Partner Country 2024** Thomas Müller (Rübig GmbH & Co. KG, Wels, Austria)
18:30	PL0300	**Responsible Surface Engineering for a Sustainable Future** Christian Mitterer (Montanuniversität Leoben, Leoben, Austria)

20:00 – 21:00 | Foyer Hall 1

Poster Session 2

- Modelling of plasma processes and film growth (P005XX) – Poster Area 2
- Protective and tribological surfaces (P006XX) – Poster Area 1
- Environmental applications (P008XX) – Poster Area 2

P00501 **An Ionization Region Model of the Reactive High-Power Impulse Magnetron Sputtering Discharge of Ti in an Ar/N2 atmosphere**
Joel Fischer (Linköping University, Linköping, Sweden)

P00502 **Predictive tool for determination of co-sputtering process parameters towards required chemical composition of thin films**
Jan Gutwirth (University of Pardubice, Pardubice, Czech Republic)

P00503 **Modelling Vacuum Arc Coating Processes By a Modular Approach**
Otmar Zimmer (Fraunhofer IWS, Dresden, Germany)

P00504 **Optimizing titanium properties through nitrogen ion implantation: Insights from various simulation techniques**
Miroslav Lebeda (Faculty of Mechanical Engineering, Czech Technical University in Prague, Prague, Czech Republic)

P00505 **Plasma simulation of HF plasma generated in dual-frequency chamber for high aspect ratio dielectric etching for 3D NAND**
Shigeyuki Takagi (Tokyo University of Technology, Hachioji, Japan)

P00506 **Predictive Model for SiO2 Film Properties using Plasma Optical Emission Spectra based on Machine Learning**
Sukma W. Fitriani (Kyushu University, Fukuoka, Japan)

P00601 **Influence of oxygen in the structural and compositional evolution of MoS_2 coatings deposited by filtered Laser-Arc after friction experiments in different atmospheres**
Aurelio García Valenzuela (Helmholtz-Zentrum Dresden-Rossendorf HZDR, Dresden, Germany)

P00603 **Deformation Behavior of High Al Content CrAlON coatings with Varying Oxygen Content**
Parisa Hassanzadegan Aghdam (RWTH Aachen University, Aachen, Germany)

P00604 **The microstructure, mechanical and tribological properties of the MO_2N/Ag-SiN_x nano-multilayered films design for the green self-lubricant applications**
Hongbo Ju (University of Coimbra, Coimbra, Portugal)

P00605 **Various metal doped MoS2 solid lubricant coatings for space applications in air and in vacuum**
Jinlong Yin (Teer Coatings Ltd, Droitwich, Worcestershire, UK)

P00606 **AlTiBN coatings deposited via HiPIMS on tools steels for industrial applications**
Adrian Claver Alba (Universidad Pública de Navarra (UPNA), Pamplona, Spain)

P00607 **Plasma-assisted surface treatments for magnesium die-casting tools to increase tool life**
Markus Mejauschek (Fraunhofer Institute for Surface Engineering and Thin Films, Braunschweig, Germany)

P00608 **Empowering PVD for corrosion protection: TiMgGdN coatings with game-changing corrosion performance**
Holger Hoche (Technical University Darmstadt, Darmstadt, Germany)

P00609 **Tribological study of advanced surface treatments for industrial applications**
Iker Alfonso (Universidad Pública de Navarra (upna), Pamplona, Spain)

P00611 **Structure, Morphology, Tribo-Mechanical and corrosion Properties of Cr-N protective Coatings Deposited by reactive HiPIMS**
Nassima Jaghar (Mohammed VI Polytechnic University, Benguerir, Morocco)

P00612 **Harmony in Hardness: Unlocking the Potential of Combined Low Temperature Surface Hardening and DLC-Coatings for Enhanced Performance and Reliability of Stainless Steels**
Michael Wendel (Bodycote Specialist Technologies GmbH, Landsberg am Lech, Germany)

P00613 **A comprehensive study of HiPIMS coated tool performance: from structural evolution upon annealing to machining tests of AlTiN and TiN coatings doped with Si or B.**
Arley Garcia Carrero (Nano4energy, Madrid, Spain)

P00614 **Diamond Coatings on Cutting Tools Applied to Super-Hard Workpiece Materials**
Michael Woda (CemeCon AG, Wuerselen, Germany)

P00615 **On the thermal cyclic and isothermal Oxidation behavior of a directionally solidified Nickel based superalloy; Effect of Coating**
Alimohammad Fazeli Tehrani (University of Tehran, Tehran, Iran)

P00616 **Mechanical and optical characterisation of PVD protective coatings on additive manufacturing polymer substrates**
Ramón Escobar-Galindo (Universidad de Sevilla. Escuela Politécnica Superior, Sevilla, Spain)

P00617 **Microstructure and mechanical properties of TiN/CrN multilayer coatings deposited in an industrial-scale HiPIMS system**
Manuel D. Abad (University Ramon Llull, Barcelona, Spain)

P00618 **Wear protection in plastic compounding applications**
Hanno Paschke (Fraunhofer Institute for Surface Engineering and Thin Films IST, Dortmund, Germany)

P00619 **Magnetron sputtered W-Zr-Cu Thin-Film Alloys: A study of phase transition, mechanical and electrical properties**
Deepika Thakur (University of West Bohemia, Plzen, Czech Republic)

P00620 **Enhancement of high-temperature thermal stability of selective solar absorber coatings through thermal diffusion barrier on metallic substrates**
Claudia I. Parra-Montero (Universidad de Sevilla, Sevilla, Spain)

P00621 **Deposition of CrN coatings inside ferritic pipe using cylindrical magnetron with multithoroidal plasma geometry, OES evaluation of DC-PULS excited plasma, HIPIMS, magnetron operation current characteristics, coating material testing.**
Weronika Goluch (Łukasiewicz Research Network, Warsaw, Poland)

P00622 **Investigation of Thermal Properties of Borided Alloy 718**
Alexander Thewes (TU Braunschweig, Braunschweig, Germany)

P00623 **Solid lubricant coatings based on chromium nitride and metal sulfide layers deposited by reactive magnetron sputtering**
Rubenson Mareus (Groupe de Recherches sur l'Energétique des Milieux Ionisés (GREMI) UMR7344, Université d'Orléans / CNRS, Orléans, France)

P00624 **Application-orientated tests on expanded austenite under tribocorrosive conditions**
Tristan Brückner (Fraunhofer Institute for Surface Engineering and Thin Films IST, Dortmund, Germany)

P00625 **Potential of carbon coatings deposited with atmospheric pressure plasma deposition (APPD)**
Juergen Glettler (Joanneum Research, Niklasdorf, Austria)

P00626 **The effects of non-metal doping on the deposition of hard, transparent, wear resistant, diamond-like carbon coatings using magnetron sputtering**
Patrick McCarthy (Gencoa, Liverpool, UK)

P00627 **Microstructure and Tribological Properties of Nitrided Layer of a FeAl40-Based Alloys upon ASPN Treatment**
Ngoc M. Le (Technische Universität Bergakademie Freiberg, Freiberg, Germany)

P00628 **Comparison of oxide layers manufactured by Plasma Electrolytic Oxidation on the AlSi10Mg alloy manufactured by casting and 3d printing**
Paula Broniszewska-Wojdat (Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland)

P00629 **Cathodic arc evaporation of $(Al_{0,67}Ti_{0,33})N$ thin films with cubic phase**
František Růžička (HVM Plasma, spol. s r. o., Prague, Czech Republic)

P00801 **Production and characterization of coating-substrate combinations for ceramic data storage media**
Erwin Peck (TU Wien, Wien, Austria)

September 4, 2024

8:00 – 8:45 | Carl Zeiss Saal
Plenary Session

8:00 **PL0400** **Synthesis of *Goldene* Comprising Single-atom Layer Gold**
Lars Hultman (Linköping Univerity, Linköping, Sweden)

9:00 – 10:00 | Foyer Hall 1
Poster Session 3

- Biomedical and agriculture applications (P012XX) – Poster Area 1
- Analytics of film structures and properties (P014XX) – Poster Area 1
- Other Plasma based Processes (P016XX) – Poster Area 1
- Gas conversion processes (P017XX) – Poster Area 2
- Plasma treatment, cleaning and etching (P018XX) – Poster Area 2
- Atomic layer & nanoparticle deposition (P020XX) – Poster Area 3
- Batteries and green hydrogen (P021XX) – Poster Area 3

P01201 **Investigation of Growing Plants in a Plant Factory Using Plasma-activated Water**
Himeno Ito (Tokyo University of Science, Noda, Japan)

P01202 **Decomposition of Growth Inhibitors in Plants by In-liquid Plasma Treatment**
Rino Suzuki (Tokyo University of Science, Noda, Japan)

P01203 **Plasma treatment of urinary catheters for improving the adhesion of polysaccharide coatings**
Alenka Vesel (Jozef Stefan Institute, Ljubljana, Slovenia)

P01204 **Characterization of the aging behavior and the change of physico-chemical properties of nitrogen-rich hydrocarbon-based plasma polymer coatings for improved cell-adhesion**
Frank Hempel (Leibniz Institute for Plasma Science and Technology, Greifswald, Germany)

P01205	**Opportunities and challenges for the use of plasma-activated water as a germicidal agent** Linda Steinhäußer (Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP, Dresden, Germany)
P01401	**In-situ Interface Characterization of Nano Crystalline Diamond Films grown by PECVD** Jan-Peter Urbach (PLASUS GmbH, Mering, Germany)
P01402	**Assessing the fatigue life of Ti-Al-N coated Ti-6Al-4V by residual stress design** Arno Gitschthaler (TU Wien, Wien, Austria)
P01404	**Stood-up drops as novel tool to monitor the effect of plasma treatments beyond the accuracy of advancing contact angle measurements** Thomas Willers (KRÜSS GmbH, Hamburg, Germany)
P01405	**Thin film characterization by laser ultrasonics** Felix Noll (RECENDT – Research Center for Non-Destructive Testing GmbH, Linz, Austria)
P01407	**Immersion infrared reflection-absorption spectroscopy studies on diamond-like carbon surfaces. II. Reactions of electrophilic groups on surfaces of sputtered a-C films.** Vitaly Raev (TU Carolo-Wilhelmina zu Braunschweig, Braunschweig, Germany)
P01408	**Multi-technique approach to study Near-Surface effects of Plasma-treated Polymers** Sabour Un Nisa (Leibniz-Institut für Polymerforschung Dresden e.V., Dresden, Germany)
P01409	**Phase field simulations on the crack behavior of DLC coatings in nanoindentation experiments** Joshua Vetter (Robert Bosch Manufacturing Solutions GmbH, Stuttgart, Germany)
P01410	**Al_2O_3 as insulating coating for various applications – characterization of the insulating properties** Astrid Gies (Oerlikon Surface Solutions AG, Balzers, Liechtenstein)

P01601 **Combination of cold spray and plasma electrolytic oxidation processes to produce layers of metal matrix composites**
Thierry Czerwiec (Institut Jean Lamour, UMR CNRS-Université de Lorraine, Nancy, France)

P01603 **Molecular Plasma – Atmospheric Plasma Nanocoatings for Advanced Surface Functionalization**
Kevin Braun (Molecular Plasma Group S.A., Foetz, Luxembourg)

P01604 **RF Sputtering onto Liquid Substrates for a Dry Single-Step Preparation of Nanofluids**
Chandrakanth Reddy Chandraiahgari (Fondazione Bruno Kessler, Trento, Italy)

P01605 **Effect of annealing on composite nanoparticle-based thin films for improved hydrogen gas sensing.**
Kalyani Shaji (University of West Bohemia,

P01606 **The impact of cathode configuration of anode layer ion source on its electrical characteristics and ion beam produced**
Alexander A. Goruppa (Teer Coatings Ltd, Droitwich Spa WR9 9AS, UK)

P01607 **Properties improvement of epoxy composite with bamboo fiber plasma treatment**
Kittisak Jantanasakulwong (Chiang Mai University, Chiang Mai, Thailand)

P01608 **Preparation and characterisation of YIG thin films deposited by DC Magnetron Sputtering for magnonic research applications**
Andreas Pfuch (INNOVENT e.V., Jena, Germany)

P01701 **Production of Hydrogen in a Ferroelectric Packed-Bed Plasma Reactor from NH_3**
Manuel Oliva-Ramirez (University of Seville, Sevilla, Spain)

P01702 **Experimental study on the influence of H_2 on an atmospheric CO_2 microwave plasma process**
Marc Bresser (University of Stuttgart, Stuttgart, Germany)

P01703 **Nonisothermal Flow Modeling of a Microwave Plasma Torch at Atmospheric Pressure for CO_2 Conversion**
Stefan Merli (University of Stuttgart, Stuttgart, Germany)

P01704 **Optical characterization of an atmospheric pressure gliding arc discharge operated for CH_4 pyrolysis**
Pierre Mathieu (University of Mons, Mons, Belgium)

P01705 **CO_2 reforming of methane over bimetallic deposited zeolite (Ni-Ce/ZSM5) catalyst: insights into deactivation behavior and optimization utilizing response surface approach (RSM)**
Dwi R. Mujiyanti (chung yuan christian university, Zhongli, Taiwan)

P01706 **Energy Balance Analysis in a Microwave Plasma Assisted CO_2 Splitting System**
Kumpyo Kwak (Tokyo institute of technology, Tokyo, Japan)

P01707 **Investigation on optimal electrode configuration of Plasma and SOEC hybrid reactor for Synergistic CO_2 reduction**
Yuki Yokoyama (Tokyo institute of technology, Tokyo, Japan)

P01802 **Plasma-Electrolytic Polishing as a Post-ProcessingTechnology for Additively Manufactured Dental Parts**
Falko Böttger-Hiller (AMtopus GmbH & Co.KG, Chemnitz, Germany)

P01803 **Study on EUV PR/SiON etch characteristics using Ion beam with grid pulsing system**
Yun Jong Jang (SUNGKYUNKWAN University, Suwon, South Korea)

P01804 **Atmospheric Plasma Technology for Polymeric Substrates and Surfaces Improvements**
Lorena G. Coelho (CeNTItvc, Vila Nova de Famalicão, Portugal), On behalf of Plasmatreat GmbH-Collaboration

P01805 **Climate Friendly Dry Etching with Solid Precursors and OES Control**
Marvin Schmid (Furtwangen University, Furtwangen, Germany)

P01807 **Characteristics of hexafluoroisopropanol plasma as low-GWP alternative in SiO_2 contact-hole etching**
Dongjun Jeon (Ajou University, Suwon, South Korea)

P01808 **Roll-to-Roll Low Pressure Plasma Enables Dry and Ecofriendly Processes**
Martin Amberg (Empa, Swiss Federal Laboratories for Materials Science and Technology, 9014, Switzerland)

P01809 **Influence of Methane Addition on Plasma Surface Treatments of a Continuous Cooling Bainitic Steels**
Alexandre da Silva Rocha (Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil)

P01810 **Applications of surface treatments obtained by ion implantation techniques**
Jaume Caro (Eurecat, Centre Tecnològic de Catalunya, Manresa, Spain)

P01811 **Exploring environmentally friendly alternatives using heptafluoropropyl methyl ether and pentafluoropropanol in SiO_2 contact-hole etching**
Hyun Seok Yang (Ajou university, Suwon, South Korea)

P01812 **Etching Characteristics of ONON(SiO2/SiNx/SiO2/SiNx) Stacked Structure Using $C_4H_2F_6$, C_4F_6, or C_4F_8-based Gases**
Nam Il Cho (Sungkyunkwan University, Suwon, South Korea)

P01813 **Heptafluoroisopropyl methyl ether as an environmentally friendly alternative to SF_6 in SiC etching**
Yujeong Hwang (Ajou University, Suwon, South Korea)

P01814 **Improved etch selectivity through pulsed remote plasma for SiO_2 isotropic etching**
Hong Seong Gil (Sungkyunkwan University, Suwon, South Korea)

P01815 **Deposition of carbon on tungsten samples using a 4kJ plasma focus device**
Morteza Habibi (Amirkabir Universiry of Technology, tehran, Iran)

P01816 **Enhancing the Hetero-material Adhesion Using Atmospheric-pressure-plasma Grafting**
Chih-Hung Liu (Industrial Technology Research Institute, Hsinchu, Taiwan)

P01817 **Development and application of low energy plasma treatments for steel surfaces**
Gustav Gürtler (voestalpine Stahl Gmbh, Linz, Austria)

P01818 **Multiscale wetting properties of fs-laser textured thin film metallic glasses surfaces synthetized by magnetron sputtering process**
Noémie Lebrun (INSA de Lyon, Villeurbanne, France)

P02002 **A study on ALE characteristics of molybdenum and enhanced selectivity to TiN**
Doseong Pyun (Sungkyunkwan University, Suwon, South Korea)

P02003 **Zn-Al-based Antibacterial Moisture Barrier Films by Plasma Enhanced Atomic Layer Deposition**
Taeyeon Cho (Korea Research Institute of Chemical Technology, Daejeon, South Korea)

P02004 **Role of Oxygen Plasma Treatments in Cu/CNT Nanohybrids Synthesis by RF Sputtering**
Chandrakanth Reddy Chandraiahgari (Fondazione Bruno Kessler, Trento, Italy)

P02005 **Compaction and sintering behavior of Ni micropowder using Ni nano-particles synthesized by RF thermal plasma process**
Chulwoong Han (Korea Institute of Industrial Technology, Inha university, Incheon, South Korea)

P02006 **Plasma-Enhanced Synthesis of Carbon Quantum Dots (CQDs) from Carboxymethyl Cellulose**
Pornchai Rachtanapun (Chiang Mai University/Faculty of Agro-Industry, Muang Chiang Mai, Thailand)

P02008 **Mechanical Compaction Behavior of Nickel Nanoparticle-Enhanced Nickel Micro-Powder**
Chulwoong Han (Korea Institute of Industrial Technology, Incheon, South Korea)

P02009 **Synthesis of Al Nano-Particle Attached Al/AlN Composite Micro-Powder Using RF Thermal Plasma**
Chulwoong Han (Korea Institute of Industrial Technology, Incheon, South Korea)

P02010 **A Combined Process for Preparing Fine and Spherical Cu-Zr Alloy Particles**
Chulwoong Han (Korea Institute of Industrial Technology, Incheon, South Korea)

P02011 **Remote Plasma Atomic Layer Deposition Process for Conformal Deposition of MnO_x Films on Carbon Nanowalls**
Shinsuke Mori (Tokyo Institute of Technology, Tokyo, Japan)

P02101 **Application of HiPIMS coatings to enhance the durability and performance of stainless steel bipolar plates in PEM electrolyzers**
María de la Paz Cumina Espinosa de los Monteros (Nano4Energy SL, Madrid, Spain)

P02102 **Nitrides as hydrogen permeation barriers in surface treated steels.**
Iñigo Braceras (TECNALIA, Basque Research and Technology Alliance (BRTA), San Sebastian, Spain)

P02103 **Effect of the manufacturing route on the corrosion protection performance of PVD coated stainless steel bipolar plates for PEM fuel cells**
Jordi Orrit-Prat (Eurecat, Centre Tecnològic de Catalunya, Manresa, Spain)

P02104 **Plasma spray coating of a High-Entropy Alloy catalyst for AEM electrolysis**
Marcel Wetegrove (Leibniz Institute for Plasma Science and Technology (INP), Greifswald, Germany)

P02105 **Characterization of reactive sputtered ceramic hydrogen barrier coatings**
Rafael Gryga (Robert Bosch Manufacturing Solutions GmbH, Stuttgart, Germany)

P02106 **Multilayer protective coatings composed of Al_2O_3 and Parylene against hydrogen embrittlement**
Heinz Busch (NTTF Coatings GmbH, Rheinbreitbach, Germany)

10:00 – 13:00 | Carl Zeiss Saal left

SESSION 12 | Biomedical and agriculture applications

10:00	KN1200	**Non-Thermal Plasmas in the Development of a Multi-Walled Carbon Nanotube-Based Drug Coating for Metallic Implants** Lynn Hein (McGill University, Montreal, Canada)
10:30	OR1201	**Exploring the roles of organic biomolecules in producing secondary reactive species in liquids and hydrogels by cold atmospheric plasmas** Eloisa Sardella (Institute of Nanotechnology, National Research Council of Italy (CNR-NANOTEC), BARI, Italy)
10:45	OR1202	**Aerosol Assisted Atmospheric Pressure Plasma deposition of fungicide and bacterial spores containing coatings** Marianna Roggio (Università degli Studi di Bari Aldo Moro, Bari, Italy)
11:00	OR1203	**Investigations on the Efficacy of Cold Plasma in the Treatment of Brain Tumors** Maik Fröhlich (University of Applied Sciences Zwickau, Zwickau, Germany)
11:15	OR1204	**Dental-linked biological properties of magnetron-sputtered Zr-Ti thin film metallic glasses: influence of the texturing by ultra-short laser** Noémie Lebrun (INSA Lyon, Villeurbanne, France)
11:30		**Break**
12:00	OR1205	**Bactericidal Efficacy and Surface Morphology of Nanopatterned TiN Films Deposited by High Power Impulse Magnetron Sputtering** David Owen (Sheffield Hallam University, Sheffield, UK)
12:15	OR1206	**Antibacterial and virucidal activity of PVD-HiPIMS deposited CrN-Cu films.** Iñigo Braceras (TECNALIA, Basque Research and Technology Alliance (BRTA), San Sebastian, Spain)

12:30	OR1207	**Antimicrobial hydroxyapatite plasma coatings for additively manufactured finger implants** Reinhard Kaindl (JOANNEUM RESEARCH Forschungsgesellschaft mbH, Niklasdorf, Austria)
12:45	OR1208	**Opportunities and challenges for the use of plasma-activated water as a germicidal agent** Linda Steinhäußer (Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP, Dresden, Germany)

10:00 – 13:00 | Carl Zeiss Saal right
SESSION 13 | Physical vapour deposition III
Supported by robeko GmbH & Co. KG.

10:00	KN1300	**Ultrafast luminescence of undoped ZnO films prepared by reactive sputtering** Jiří Olejníček (Czech Academy of Sciences, Prague, Czech Republic)
10:30	OR1301	**Sputtering deposition of $Tm_3Fe_5O_{12}$ films and optical diagnostics of the sputtering plasma** Kazunori Koga (Kyushu University, Fukuoka, Japan)
10:45	OR1302	**Influence of oxygen incorporation on film properties of magnetron sputtered AlScN thin films** Stephan Barth (Fraunhofer FEP, Dresden, Germany)
11:00	OR1303	**Corrosion resistance of thin films prepared by magnetron sputtering on Al surfaces** Tomas Kubart (Uppsala University, Uppsala, Sweden)
11:15	OR1304	**Multilayer transparent anti-reflective IR coatings by thermal evaporation for architectural applications** Bruno G. Fernandes (CeNTI, Vila Nova de Famalicão, Portugal)
11:30		**Break**

12:00	OR1305	**Epitaxial growth of TiZrNbTaN$_x$ films on c-plane sapphire without external heating.** Sanath Kumar Honnali (Linköping University, Linköping, Sweden)
12:15	OR1306	**Non-reactive magnetron sputtering of Ti-Al-N coatings** Balint I. Hajas (TU WIEN, Vienna, Austria)
12:30	OR1307	**Intentionally exciting spokes at a magnetic field step along the racetrack in magnetron sputtering** Martin Rudolph (Leibniz Institute of Surface Engineering (IOM), Leipzig, Germany)
12:45	OR1308	**The radial distribution of the temperature of a 2" target during DC magnetron sputtering** Marco A. Martinez-Fuentes (Universidad Nacional Autonoma de Mexico, Mexico, Mexico)

10:00 – 13:00 | Christian-Reichard Saal
SESSION 14 | Analytics of film structures and properties

10:00	KN1400	**PSE EARLY CAREER AWARD LECTURE | Opportunities and challenges of compositional characterization with nanoscale spatial resolution using atom probe tomography** Marcus Hans (RWTH Aachen University, Aachen, Germany)
10:30	OR1401	**Measuring system for inline inspection of plasma coatings using infrared reflection absorption spectroscopy** Friederike Münch (Fraunhofer Institute for Physical Measurement Techniques IPM, Freiburg, Germany)
10:45	OR1402	**MGA Nanoparticle Thin Films for Enhanced Hydrogen Gas Sensing: Synthesis, Modeling, and Characterization** Stanislav Haviar (University of West Bohemia, Pilsen, Czech Republic)

11:00	OR1403	**Fracture characteristics of Si-containing ternary and quaternary transition metal diborides** Rainer Hahn (CDL-SEC, Technische Universitaet Wien, Vienna, Austria)
11:15	OR1404	**Insulating and structural properties of reactively grown AlN and Al_2O_3 thin films** Norma Salvadores (TU Wien, Wien, Austria)
11:30		**Break**
12:00	OR1405	**The impact of the indenter radius on the scratch test results of monolithic TiNbN PVD coatings for medical applications** Henry Dempwolf (DOT GmbH, Rostock, Germany)
12:15	OR1406	**Morphological, structural and chemical characterizations of AlN-Cu thin films deposited by Reactive DC and High-Power Impulse Magnetron Sputtering** Pierre-Louis Martin (Nantes Université, CNRS, Nantes, France)
12:30	OR1407	**The detailed influence of hydrogen and carbon content on the microstructure of nanocrystalline, single-phase, hard TiC_{1-x}:H films and hydrogenated, low-friction, carbon-based TiC_{1-x}:H/a-C:H nanocomposites** Sven Ulrich (Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany)
12:45	OR1408	**Exploring driving forces and mechanisms for the contrasting vein patterns and columnar fracture shapes in Cu-Zr thin film metallic glasses** Emile Haye (UNamur, Namur, Belgium)

10:00 – 13:00 | Panorama Saal
Trend Workshop Hydrogen Technologies

10:00	TW1500	**Thin-film technologies as enabler for future hydrogen market** Sabrina Zellmer (Fraunhofer-Institute for Surface Technology and Thin Films, Braunschweig, Germany)
10:30	TW1501	**Plasma-based industrial processes for production of green hydrogen – comparing various approaches, plasma sources and working points based on process-level simulation insights** Adam Obrusnik (PlasmaSolve s.r.o., Brno, Czech Republic)
10:45	TW1502	**CH_4 direct conversion in double vortex gliding arc reactor evaluation for green chemistry upscaling** Philippe Roquiny (AGC Glass Europe S.A., Gosselies, Belgium)
11:00	TW1503	**Thin Film Coating Solutions for Hydrogen Economy** Ralf Bandorf (Fraunhofer IST, Braunschweig, Germany)
11:15	TW1504	**Cu_2O/MoS_2 electrodes produced by magnetron sputtering for water electrolysis** Sandra Carvalho (University of Coimbra, Coimbra, Portugal)
11:30		**Break**
12:00	TW1505	**Challenge accepted – High volume coating of metallic plates for hydrogen applications by PVD technology** Philipp Immich (IHI Hauzer Techno Coating B.V., Venlo, Netherlands)
12:15	TW1506	**Enhancing hydrogen permeating barriers on stainless steel through optimised DLC coatings by PECVD** Oihane Hernández-Rodríguez (Tekniker, Eibar, Spain)
12:30	TW1507	**Development of hydrogen barrier coatings and characterization methods thereof** Lukas Gröner (Fraunhofer IWM, Freiburg, Germany)

12:45	TW1508	**In-situ Testing of Hollow Specimen under H2 Atmosphere** Bernd Schrittesser (SCIOFLEX Hydrogen GmbH, 7210, Austria)

14:30 – 17:00 | Carl Zeiss Saal left
SESSION 16 | Other Plasma based Processes

14:30	KN1600	**Merging Plasma Sputtering Deposition and Acoustic Wave Activation for the Deposition of Materials** Manuel Oliva-Ramirez (University of Sevilla, Sevilla, Spain)
15:00	OR1601	**Plasma electrolytic oxidation (PEO) using sequenced current waveforms: influence on the process and on the coating morphology** Lucas Magniez (Université de Lorraine, Nancy, France)
15:15	OR1602	**Continous Polymer Grafting onto Carbon Fibres by Diffrent Atmospheric Plasma Generation Methods under Technical Scale Process Conditions** Oliver Deussen (RWTH Aachen University, Aachen, Germany)
15:30	OR1603	**Pioneering work for the implementation of the Inverted Fireball Technology (IFB) for more effective PVD Magnetron Sputtering** Gerhard T. Eichenhofer (4A-PLASMA, Holzgerlingen, Germany, Germany)
15:45		**Break**
16:15	OR1604	**Atmospheric pressure plasmas for conversion of Si-precursor compounds into silicon oxide films** Patrick C. With (Leibniz Institute of Surface Engineering (IOM), Leipzig, Germany)

16:30	OR1605	**Ceramic Films Formed by Plasma Electrolytic Oxidation Method** Sungmo Moon (Korea Institute of Materials Science, Changwon-si, Gyeongnam, South Korea)
16:45	OR1606	**Low temperature starting layer for GaN-based devices** Ghassan Barbar (ELEMENT 3-5 GmbH, Baesweiler, Germany)

14:30 – 17:00 | Carl Zeiss Saal right
SESSION 17 | Gas conversion processes

14:30	KN1700	**Microwave Plasma Catalytic Dry Reforming of Methane into Hydrogen-rich syngas over Porous Nickel-alumina derived from MIL-53(Al) Catalysts** Choncharoen Sawangrat (Chiang Mai University, Chiang Mai, Thailand)
15:00	OR1701	**Development of temperature- and pressure-dependent plasma-chemical kinetic reaction mechanisms for sustainable gas conversion** Ramses Snoeckx (Empa, Swiss Federal Laboratories for Materials Science and Technology, St. Gallen, Switzerland)
15:15	OR1702	**Gas Separation of O_2 in a CO_2 Plasma Membrane Reactor** Katharina Wiegers (University of Stuttgart, Stuttgart, Germany)
15:30	OR1703	**Investigations on electro-plasma chemical conversion of CO_2** Thomas Neubert (Fraunhofer Institut für Schicht- und Oberflächentechnik IST, Braunschweig, Germany)
15:45		**Break**
16:15	OR1704	**Nitric Acid from an Atmospheric Microwave Air Plasma** Andreas Schulz (University of Stuttgart, Stuttgart, Germany)

16:30	OR1705	**Ammonia synthesis in a catalyst assisted low-pressure microwave plasma** Abhyuday Chatterjee (University of Mons, Mons, Belgium)
16:45	OR1706	**Synergy of Inorganic Catalyst and Plasma-Assisted Catalytic CO_2 Conversion into Valuable Products** Komgrit Leksakul (Chiang Mai University, Chiang Mai, Thailand)

14:30 – 17:00 | Christian-Reichard Saal
SESSION 18 | Plasma treatment, cleaning and etching

14:30	KN1800	**Influence of Process Parameters for Direct Writing Chemical Micropatterning Using Surface Atmospheric Pressure Plasma Printing (SurfAP³®)** Laura Barillas (Leibniz Institute for Plasma Science and Technology, Greifswald, Germany)
15:00	OR1801	**New reactive ion etching process with Faraday cage for nanostructuring of curved optical surfaces** Phil L. Frenzel (Westsaxonian University of Applied Science, Zwickau, Germany)
15:15	OR1802	**Etch characteristics IGZO and chamber cleaning using $C_xH_yF_z$ gases** Jong Woo Hong (Sungkyunkwan University, suwon, South Korea)
15:30	OR1803	**Cyclic etching process for reducing contact-hole diameter using low-GWP etchants** Sanghyun You (Ajou University, Suwon, South Korea)
15:45		**Break**
16:15	OR1804	**Improvement of mechanical properties of steel by plasma austenitic nitriding and quenching** Masahiro Okumiya (Toyota Technological Institute, Nagoya, Japan)

16:30	OR1805	**Anisotropic wetting on asymmetric nanohairs with different tilted angles by Faraday-cage-assisted plasma nanotexturing** Yu Peng Li (Dalian University of Technology, Dalian, China)
16:45	OR1806	**An open atmosphere nitriding phenomenon on metal surfaces triggered by laser induced plasma** Naofumi Ohtsu (Kitami Institute of Technology, Kitami, Japan)

14:30 – 17:00 | Panorama Saal

SESSION 19 | Protective and tribological surfaces II

14:30	KN1900	**Magnetron sputtered Ti-alloys coatings on titanium samples for biomedical applications** Juan Carlos Sánchez López (CSIC, Sevilla, Spain)
15:00	OR1901	**Super-hydrophobic layers by drop-casting and atmospheric pressure plasma deposition** Carina Hendler (JOANNEUM RESEARCH Forschungs-gesellschaft mbH, Niklasdorf, Austria)
15:15	OR1902	**Humidity-resistant low-friction dry lubricant metallic-polymeric based coatings on PEEK and PET** Dietmar Kopp (Joanneum Research, Niklasdorf, Austria)
15:30	OR1903	**Corrosion protection of cerium containing HMDSO coatings processed by APPD** Mirjam Spuller (JOANNEUM RESEARCH Forschungsgesell-schaft mhG, Graz, Austria)
15:45		**Break**
16:15	OR1904	**Self-formation of dual-phase nanocomposite coatings within ternary Zr-Cu-B system** Petr Zeman (University of West Bohemia, Plze, Czech Republic)

16:30 **OR1905**

Corrosion and tribological properties of Duplex coating deposited via PEO and HiPIMS on ZK60 Mg alloy
Adrian Claver Alba (Universidad Pública de Navarra (UPNA), Pamplona, Spain)

16:45 **OR1906**

Mastering Challenges in Forming Non-Ferrous Metals
Tobias Brögelmann (IHI Ionbond Netherlands B.V., Venlo, Netherlands)

17:30 – 18:15 | Carl Zeiss Saal
Plenary Session

17:30 **PL0500**

Development of new plasma process sources using microwave power
Hirotaka Toyoda (Nagoya University, Nagoya, Japan)

19:00 – 22:00 | Kaisersaal, Erfurt
Conference Dinner

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September 5, 2024

8:00 – 9:15 | Carl Zeiss Saal
Award Session

8:00		**Award Ceremony PSE Awards 2024** Michael Thomas (Chairman of the EJC/PISE, Braunschweig, Germany)
8:30	PL0600	**PSE LEADING SCIENTIST AWARD 2024 |** **Winners Lecture: Glows, Arcs, Ohmic Discharges: Proposing an updated classification based on electron emission and power dissipation** André Anders (Leibniz Institute of Surface Engineering (IOM), Leipzig, Germany)

9:45 – 13:00 | Carl Zeiss Saal left
SESSION 20 | Atomic layer & nanoparticle deposition

9:45	KN2000	**Plasma Enhanced Atomic Layer Deposition of Cobalt** Mathias Franz (Fraunhofer Institute for Electronic Nano Systems, Chemnitz, Germany)
10:15	OR2001	**Cu3N nanocubes produced in the post-magnetron-based nanoparticle source: on the way to large-scale nanoparticles production** Hynek Biederman (Charles University, Prague, Czech Republic)
10:30	OR2002	**Embedding of diffraction gratings by atomic layer deposition for high-efficiency polarization-insensitive transmission** Kristin Gerold (Fraunhofer Institute for Applied Optics and Precision Engineering, Jena, Germany)
10:45	OR2003	**Fabrication and characterization of NiTi alloy by spark plasma sintering method** Sneha Samal (Institute of Physics of Czech academy of science, prague, Czech Republic)

11:00	OR2004	**III-Nitride group semiconductor materials made by low temperature plasma Atomic Layer Deposition** Noureddine Adjeroud (Luxembourg Institute of Science and Technology, Luxembourg, Luxembourg)
11:15		**Break**
11:45	OR2005	**Thermal Atomic Layer Deposition of ZnO on Laser Induced Graphene for photocatalytic degradation of water pollutants** Regina Del Sole (Università degli Studi di Bari Aldo Moro, Bari, Italy)
12:00	OR2006	**Ag-Cu nanoparticle architecture for enhanced LSPR detection: result of near-field interactions** Vitezslav Stranak (University of South Bohemia, Ceske Budejovice, Czech Republic)
12:15	OR2007	**Plasma-enabled doping of atomic layer deposited ZnO: in-processing and post-processing strategies towards solar photocatalysts** Alberto Perrotta (Italian National Research Council (CNR), Bari, Italy)
12:30	OR2008	**Magnetic Ni, Fe, FeN nanoparticles and nanofluids prepared by sputter-based gas aggregation cluster source** Kateryna Biliak (Charles University, Prague, Czech Republic)
12:45	OR2009	**MgO Nanoparticles and MgO/ZnO Nanocomposites synthesized by Atmospheric Non-Thermal Plasma Jet** Sarinthip Thanakkasaranee (Chiang Mai University, Mueang Chiang Mai, Thailand)

9:45 – 13:00 | Carl Zeiss Saal right
SESSION 21 | Batteries and Green Hydrogen

9:45	KN2100	**Protective coatings on proton exchange water electrolysis prepared by hipims magnetron sputtering** Marta Brizuela (TECNALIA, Basque Research and Technology Alliance (BRTA), Donostia-San Sebastian, Spain)
10:15	OR2101	**Elaboration of WO_3/TiO_2 nanostructured photoanodes by electrochemical anodization combined with reactive magnetron sputtering for solar water splitting application** Timothee Lang (Sorbonne Université, CNRS, Paris, France)
10:30	OR2102	**Method for hydrogen production by methane cracking using vacuum plasma.** Ruben Bartali (Fondazione Bruno Kessler, Trento, Italy)
10:45	OR2103	**Corrosion-resistant and Electrically Conductive Ti-Nb-O Coatings for Metal Bipolar Plates for PEM Electrolyzers** David Kolenatý (University of West Bohemia, Pilsen, Czech Republic)
11:00	OR2104	**High-Performance PVD-Coating-Systems for Fuel Cell-Based Mobility: Development and Application** Edgar Schulz (Schaeffler Technologies AG&Co. KG, Herzogenaurach, Germany)
11:15		**Break**
11:45	OR2105	**Development of a formable roll-to-roll PVD-Arc coating for metallic bipolar plates** Maurizio Giorgio (Fraunhofer-Gesellschaft, Dortmund, Germany)
12:00	OR2106	**Manufacturing of catalytic materials by magnetron sputtering wiht ultra-low Pt content for water electrolyzers.** Eva G-Berasategui (TEKNIKER, EIBAR, Spain)

12:15	OR2107	**Radio Frequency Magnetron Sputtering of MoS_2 electrocatalysts for Anion Exchange Membrane Water Electrolyzers** Giulia Di Gregorio (Fondazione Bruno Kessler, Trento, Italy)
12:30	OR2108	**Thin film Li-ion TiO2 Anodes for solid state batteries** Gustavo B. Santos (CeNTI, Vila Nova de Famalicão, Portugal)
12:45	OR2109	**A plasma process to enhance electrode performance for large scale hydrogen production** Timo Wagner (University Duisburg-Essen, Duisburg, Germany)

9:45 – 13:00 | Christian-Reichard Saal
SESSION 22 | Protective and tribological surfaces III
Chairs: Christian Mitterer (Leoben)

9:45	KN2200	**The influence of bilayer periods and ratios onmechanical and tribological properties of TiN/MoN superlattice thin films** Paul H. Mayrhofer (TU Wien, Vienna, Austria)
10:15	OR2201	**Effect of different plasma diffusion treatments on the surface properties of austenitic stainless steels** Phillip M. Reinders (Technische Universität Braunschweig, Braunschweig, Germany)
10:30	OR2202	**Assessing hydrogen diffusion in protective coating materials** Helmut Riedl (TU Wien, Wien, Austria)
10:45	OR2203	**Synthesis of novel multi-element TM-aluminides by multilayer magnetron sputtering** Vincent Ott (Karlsruhe Institute of Technology, 76344, Germany)

11:00	OR2204	**Enhancement of the corrosion properties by alloying ternary TiAlN coatings with MgGd** Thomas Ulrich (Technische Universität Darmstadt, Darmstadt, Germany)
11:15		**Break**
11:45	OR2205	**Influence of Al-content on structure, mechanical properties and thermal stability of (Al,Ta,Ti,V,Zr)-nitride coatings** Alexander Kirnbauer (TU Wien, Wien, Austria)
12:00	OR2206	**Influence of Al:Ti ratio and bias on the structure and mechanical properties of AlTiN coatings** Jiri Nohava (Anton Paar Tritec, Corcelles, Switzerland)
12:15	OR2207	**Wear behaviour of TiAlN coatings in CO_2 atmosphere** Matej Drobnič (Jožef Stefan Institute, Ljubljana, Slovenia)
12:30	OR2208	**Effects of Multilayer Structure on Mechanical Properties and Impact Fatigue Resistance of AlCrN/CrMoN/TiSiN Hard Coatings** Bo-Jun Lee (National Formosa University, Yunlin, Taiwan)
12:45	OR2209	**Residual Stress and Thermal stability Analyses of AlTiN/TiSiN/CrMoN Hard Coatings Deposited by Cathodic Arc Evaporation** Min-Xin Shi (National Formosa University, Yunlin, Taiwan)

13:00 End of the Conference

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INDUSTRIAL EXHIBITION

Company Profiles of Exhibitors

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Advanced Energy

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Advanced Energy shapes and transforms how power is used, delivered and managed with technologies that enable precise plasma control. As a leading supplier of precision power conversion, measurement, control, and testing systems for the plasma industry, AE is at the forefront of providing solutions supporting the fabrication of next-generation solutions with a comprehensive portfolio of products.

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Anton Paar Germany GmbH

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Anton Paar develops, produces, distributes, and provides application know-how, support and service for analytical instruments used in research, development, and quality control for laboratory and process applications worldwide. Anton Paar has continuously found new ways to merge high-precision engineering with scientific curiosity.

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Aurion Anlagentechnik GmbH

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+49 6182 962825 www.aurion.de/en

Aurion supplies batch, cluster and inline systems for the treatment of and the coating on surfaces by means of plasma processes, as well as radio frequency components. Plasma technologies employed include activation, cleaning and etching with reactive ion etching and microwave downstream plasma, coating with PVD (physical vapor deposition, sputtering) and PECVD (plasma enhanced chemical vapor deposition). RF components include automatic impedance matching networks, filters, switches, power splitters, flexible connectors and many more. Furthermore Aurion´s team offers its extensive expertise in the areas of plasma technology and radio frequency technology for consulting services and training courses.

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Avaluxe International GmbH

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+49 911 641551100 www.avaluxe.de

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- Our materials for your PVD coating processes improve your product to the next level.
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- Technology & process know-how to optimize your coating processes. In a nutshell, we focus on the needs of the PVD coating market. Materials, technologies & service.

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boltzplatz – numerical plasma dynamics GmbH

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boltzplatz is an engineering service provider, offering numerical simulations of rarefied gas and plasma dynamics to reduce the need for costly prototypes and extensive testing. Potential applications include the prediction of the performance of vacuum pumps, determination of the gas and plasma distribution in vacuum coating equipment, and the characterization of electron and ion beam properties. Beyond complete simulation projects, we offer technical support and software development for our open-source simulation tool PICLas.

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Brooks Instrument GmbH

Zur Wetterwarte 50, Gebäude 337/B, 01109 Dresden, Germany
Joerg Riedel joerg.riedel@brooksinstrument.com
+49 1516 4571386 www.brooksinstrument.com

Since 1946, Brooks Instrument has been a leader in precision fluid measurement and control technology. Providing instrumentation for flow, pressure and vapor delivery, the company serves customers in high-tech industrial manufacturing and process industries.

With manufacturing, sales and service locations in the Americas, Europe and Asia, Brooks Instrument has the world's largest installed base of mass flow controllers. Its broad family of products includes the UNIT Instruments, Tylan and Celerity brands.

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CemeCon AG

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www.cemecon.com/de/en

CemeCon is the world market leader in diamond coating and technology leader in PVD coating of precision tools for machining. The coating materials required for premium coatings are produced within the coating systems developed by CemeCon. Customers make use of the company's expertise in both coating services and plant engineering. Renowned tool manufacturers worldwide use the technology and expert knowledge of CemeCon for their own competitive advantage and to open up new business areas. CemeCon has brought the future technology HiPIMS to market maturity. It combines the advantages of all common PVD coating processes – and that with high economic efficiency.

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Comet
Plasma Control Technologies

Comet Yxlon GmbH, Plasma Control Technologies, Kellershaustrasse 22, 52078 Aachen, Germany Harald Landes harald.landes@comet.tech
+49 170 5764727 www.pct.comet.tech

Comet is part of the Comet Group, a world-leading Swiss technology company that has been developing and producing innovative high-tech components and systems based on radio frequency and X-ray technology for over 70 years. The Plasma Control Technologies division manufactures specialized components needed for precise control of plasma processes and to enhance the performance of manufacturing equipment. These are used in the production of memory chips or touch screens, such as those used today in sensors, smartphones or tablets. Other areas of application include the solar industry, broadcasting, but also laser or medical applications such as MRI equipment.
Offered are: – Impedance matching networks
– High frequency generators
– Vacuum capacitors

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Enterprise Europe Network Thüringen

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Enterprise Europe Network (EEN) supports small and medium-sized enterprises and research-related institutions on their way into international markets and projects. We offer practical and free support in the development and utilization of innovations, in accessing EU funding and in initiating international cooperation in the business, technology and project sectors. The network works on behalf of the EU Commission at around 550 institutions in 57 countries worldwide. Well connected with industry and research clusters in Europe and beyond we can effectively disseminate your cooperation requests and offers internationally.
EEN is organising an matchmaking event at PSE2024.
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European Society of Thin Films e. V. (EFDS)

Gostritzer Str. 63, 01217 Dresden, Germany
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Innovation is the fuel for the future. In order to generate economic success from research results, small and medium-sized enterprises need access to technological progress. Research and innovation thrive on intensive exchange and cooperation between all players. In order to achieve this goal, we support innovative ideas from industry and science with the »Industrial Collective Research (IGF)« funding program, among other things. The aim of this funding program is to strengthen research and innovation in Germany.

The EFDS brings people together, gives people with good ideas a platform and supports innovative companies in their cooperation with competent partners.

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FHR Anlagenbau GmbH

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FHR Anlagenbau GmbH is a worldwide supplier of special equipment & series products for thin film technology for research & industry.
The medium-sized company was founded in 1991 and employs about 200 people at the Ottendorf-Okrilla site near Dresden.
As a leading provider of vacuum coating systems, industries such as electronics, MEMS and sensor technology, precision optics and display, solar thermal and photovoltaics rely on our cutting-edge thin film solutions. Sputtering, vapor deposition, PECVD and ALD technologies are used in our equipment platforms.
We are The Thin Film Company, and this states our vision and our demands on ourselves.

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Fraunhofer FEP

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Fraunhofer Institute for Electron Beam and Plasma Technology FEP works on innovative solutions in the fields of vacuum coating and surface treatment. The core competencies electron beam technologies, roll-to-roll technology as well as plasma-activated large-area and precision coating provide a basis for these activities.

Thus, Fraunhofer FEP offers a wide range of possibilities for research, development and pilot production, especially for the processing, sterilization, structuring and refining of surfaces as well as sensors and filters.
Our aim is to seize the innovation potential of these technologies for new production processes and devices and to make it available for our customers.

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Fraunhofer IST

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At the Fraunhofer Institute for Surface Engineering and Thin Films IST we open up the potentials for future-oriented products and the associated competitive and scalable production systems. Our research encompasses plant engineering, entire process chains of process engineering, process technology and manufacturing technology all the way through to the consideration of entire factories. Taking the requirements of sustainability as a starting point, we maintain an overview of the entire product life cycle – from the material, through the process of creating the component and product, and on to recycling.

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Fraunhofer IWS

Fraunhofer IWS

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Fraunhofer IWS offers solutions for functionalized surfaces: hard, low-friction, electrically conductive or reflective. The PVD and Nanotechnology field develops processes and equipment technology for the production of thin films based on physical deposition processes. The coating systems range from friction- and wear-reducing carbon and hard material coatings for components and tools, nanometer multilayers for special optical applications to reactive multilayers for joining applications. In addition, we also develop own measurement methods and characterization processes, such as non-destructive laser acoustics technique.

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Fraunhofer IWU

Fraunhofer IWU

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The Fraunhofer Institute for Machine Tools and Forming Technology IWU is a driving force in research and development for production technology. Around 670 highly qualified employees work at our locations in Chemnitz, Cottbus, Dresden, Leipzig, Wolfsburg, and Zittau. We strengthen the competitiveness in automotive and mechanical engineering, aerospace technology, medical engineering, electrical engineering, and precision and microengineering. Our research focuses on components, processes, methods, and the associated complex machine systems and their interaction with humens – the entire factory.

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Gencoa

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Gencoa provide components and expert solutions for vacuum coating applications, with products and services covering all stages of coating processes from plasma pre-treatment and ion sources to planar and rotatable magnetron sputter cathodes.
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HAWK

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Hiden Analytical Europe GmbH

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HORIBA is a world-leading manufacturer of measuring instruments and systems for automotive testing, process and environmental engineering, medical diagnostics and semiconductor manufacturing. HORIBA also offers a wide range of molecular and elementary analytical instrumentation for research, quality control and laboratory analysis.

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House of Plasma GmbH

Universitätsstraße 136, 44799 Bochum, Germany
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ICS – Innovative Coating Solutions

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IHI Hauzer Techno Coating B.V.

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Geert-Jan Fransen gfransen@hauzer.nl
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IHI Ionbond

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Ionbond provides thin-film coating services and operates worldwide. Its coatings are used to improve durability, quality, functionality, efficiency and aesthetics of tools and components. Our portfolio includes PVD, PACVD, CVD, CVA and CVI technologies, including a broad range of DLC coatings.

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The general objectives of the Network of Competence Industrial Plasma Surface Technology INPLAS are to secure and expand the globally leading position of German and European enterprises and research institutes in the field of plasma surface technology and to increase the level of awareness of plasma technology in the public eye. The spectrum of application fields among the INPLAS members ranges from hardening, tempering, coating and treatment of different materials and the associated product and production systems in the fields of the automobile and tool construction industry, optic, architectural glass and plastics, biological and medical applications, enviroment and energy.

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Ionautics

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+46 704 397676 www.ionautics.com

Ionautics provides our customers with the tools and know-how to meet the increasing demands on performance and product quality of thin film coatings. All units in the HiPSTER series can be equipped with our recent Reactive HiPIMS Process Control, which allows for stabilization of reactive processes.With the new ultra-fast switching technology and extended HiPIMS pulse control the HiPSTER is a perfect tool when developing and running state-of-the-art HiPIMS processes. The HiPSTER can be directly connected either to an existing DC supply or to one of our tailor-made HiPSTER DC units. We also provide dedicated synchronization units for full control of several HiPSTER units and substrate bias units on multi-magnetron systems.

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IONICS SA

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IONICS develops and supplies surface treatment technologies and processes: plasma sputtering, ion implantation and electroplating. Our customers capitalize on our innovative approach and responsive services as equipment supplier and as job coater. Our domains of application are the automotive connectors, architectural glass, biomedical devices, machining tools, ...
Our vision is to be a leading company in functionalized surface treatments, enabling our customers to explore new product applications by using our smart surface solutions and technologies.
Our values are integrity, cultural diversity and respect for the environment. We are committed to excellence, innovation, service and delivering tomorrow's answers today.

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J. Schneider Elektrotechnik GmbH

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Michael Schweiger m.schweiger@j-schneider.de
www.j-schneider.de

Since more than 80 years J. Schneider Elektrotechnik delivers customer-specified and standard power supplies all over the world. In the high voltage power supply division J. Schneider especially designs and manufactures power supplies for the high voltage and vacuum process equipment in the output power range 1kW-120kW with output voltages 400 V – 170 kV. The high voltage power supplies for ion and electron beam applications, x-ray, laser and high voltage plasma processes work with high reliability and robustness in several applications such as e-beam evaporation, e-beam welding, ion beam systems, capacitor charge systems, glow discharge, x-ray supplies and sputter applications.

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Kenosistec

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Established in 2005, Kenosistec is a pioneering force headquartered in Casarile, near Milan (Italy), leading innovation in the realm of High Vacuum Coatings and Plasma technology. We proudly stand as an ISO 9001-certified manufacturer specializing in advanced equipment for plant production.

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Kontron AIS GmbH

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Frank Geissler frank.geissler@kontron-ais.com
+49 351 21660 www.kontron-ais.com

Kontron AIS GmbH sets the benchmark in industrial software – for more than 30 years and with an experienced team of over 250 employees. The proven software products and customized digitalization solutions enable machine and equipment builders as well as factory operators to break new ground in automation and secure long-term competitive advantages. Together with its customers, Kontron AIS implements worldwide cross-industry, intelligent digitalization strategies and solutions for the smart manufacturing of tomorrow.
As a subsidiary of the Kontron AG, Kontron AIS offers integrated, end-to-end IoT concepts consisting of hardware and software as well as worldwide project management, service, and support thanks to a global network.

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LSA | Automation

Äußerer Hofring 11, 09429 Wolkenstein, Germany
Aaron Strobel antriebstechnik@lsa-gmbh.de
+49 37369 172246 www.lsa-gmbh.de

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MAGPULS GmbH

Im Unterfeld 19, 76547 Sinzheim, Germany
Dieter Oliver Schorn info@magpuls.net
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Our bipolar HIPIMS technology guarantees highest process stability, high plasma density; homogeneous and dense films, even for large surface structures and decoupling of temperature rise on substrate from power input.

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Megatech GmbH

Sachsenwerkstraße 79, 01257 Dresden, Germany
Heiko Thierschmann heiko@megatech.com
+49 351 50197214 www.megatech.com

Megatech Limited is the largest independent supplier of equipment and services to the semiconductor and thin film industries in the UK. Established in 1973, the company has built a well-founded reputation for the supply of quality products, in-depth technical expertise, and excellent customer service. International Sales and Service Megatech Europe Limited has offices and stock facilities in the ROI for mainland Europe customers and Megatech GmbH are located in Dresden, Germany. Megacold LLC has cryopump sales and service facilities in the USA for US, Canada and South America. We also have Megacold sales agents in SE Asia.

MELEC GmbH

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HiPIMS + rf 13.56 MHz combined on one Magnetron

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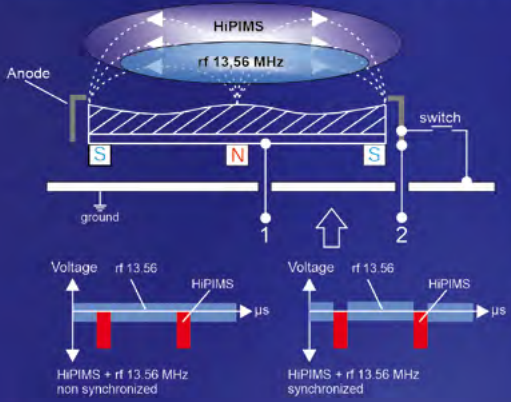

Hybrid HiPIMS / rf plasma using an aluminum target. Fraunhofer-Institut für Werkstoffmechanik IWM Wöhlerstraße 11, 79108 Freiburg

Visit us on Booth #51

Contact:

MELEC GmbH
The High Pulse Power Company
MELEC GmbH
Dr.-Rudolf-Eberle-Str. 27
76534 Baden-Baden, Germany
Phone: +49 7223 28145-01
Fax: +49 7223 28145-09
Email: info@melec.de
Web: www.melec.de

Booth

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MELEC GmbH

Dr.-Rudolf-Eberle-Str. 27, 76534 Baden-Baden, Germany
Günter Mark guenter.mark@melec.de
+49 7223 2814501, mobile +49 171 2748324 www.melec.de

MELEC generators are designed to provide researchers and engineers with the most flexible and stable tool available on the market. Key application of MELEC devices is the generation of highly ionized plasma discharges, often referred to as »High Power Impulse Magnetron Sputtering« (HiPIMS). All our power supplies can also be used for mid-frequency (MF), DC or bias applications. The SIPP (Superimposed Pulse Power) technology, which allows for the merging of different excitation schemes into a hybrid process, e. g. HiPIMS superimposed with RF, MF or DC.
RF sputtering is an established process for reactive sputtering of dielectric films. The novel HiPIMS/RF process aims to combine this with the superior film qualities of HiPIMS films.

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MUEGGE GmbH

Hochstraße 4 – 6, 64385 Reichelsheim, Germany
Jens Hofmann jens.hofmann@muegge.de
+49 6164 93070 www.muegge-group.com

For more than 30 years MUEGGE has been a leading international manufacturer and provider of plasma source technologies, industrial microwave heating components and related systems.

Our portfolio includes microwave generators in 2.45 GHz and 915 MHz from 1 kW to 100 kW, the related waveguide and matching components. Magnetrons, plasma systems and plasma components, such as plasma-arrays for large area deposition, remote plasma sources, atmospheric plasma sources and downstream sources complete our range of products.

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Pfeiffer Vacuum

PFEIFFER VACUUM
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Berliner Straße 43, 35641 Asslar, Germany
Florian Jammer florian.jammer@pfeiffer-vacuum.com
www.pfeiffer-vacuum.com

Vacuum technology is needed in the manufacture of countless products of our daily life and enables future technologies. You develop the megatrends of our future. We supply these growth markets with the matching solutions by closely collaborating with you right from the development stage.
Since 1890, Pfeiffer Vacuum has shaped the vacuum industry.
About 4,000 employees at 10 production sites and more than 20 sales and service companies worldwide give everything for you. With our product portfolio, we offer solutions for all vacuum applications. We are not only driven by highest quality standards. It is our vision to be the most sustainable and fastest growing market player to drive technology for a sustainable future.

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Plansee SE

PLANSEE

Metallwerk-Plansee-Straße 71, 6600 Reutte, Austria
info@plansee.com
+43 5672 6000 www.plansee.com

Plansee – Strong metals. Strong products.
With over 100 years of experience in refractory metals and powder metallurgy we develop and manufacture innovative, customized solutions for our customers. Whether in the electronics or hardcoating industry, our refractory metals and composite materials come into play when conventional materials reach their limits. Our sputtering targets and arc cathodes are of the highest quality, ensuring superior performance for all your thin film applications. Our experts support you from the raw material to the finished product covering R&D, manufacturing in our facilities worldwide, always ensuring high quality through our in-house testing laboratories.

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PLASMA GERMANY c/o EFDS

Gostritzer Str. 63, 01217 Dresden, Germany
Prof. Dr. techn.-Ing. Udo Klotzbach plasma_germany@efds.org
+49 351 8718370 www.plasmagermany.org

PLASMA GERMANY is a committee of 11 supporting organizations with a common interest in plasma surface technologies and their applications. The network of experts promotes cooperation between scientists, engineers and technicians from science and industry.

PLASMA GERMANY aims to publicize the opportunities of this innovative technology and, together with science, industry and politics, to highlight and discuss the prospects of plasma-based processes and technologies. Plasma technologies offer a wide range of opportunities to master today's challenges with sustainable solutions.

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PlasmaSolve s.r.o.

Sukova 49/4, 602 00 Brno, Czech republic
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+420 776 185170 plasmasolve.com

PlasmaSolve is a Czech company with over eight years of expertise in Industry 4.0 technologies, specializing in simulation, process mining, and digital twin models. Our flagship product, MatSight, is a cutting-edge software suite designed to simplify plasma process and equipment development, particularly for PVD, PECVD, and etching systems. MatSight features specialized Apps for tasks such as target erosion, 3D coating uniformity, large-scale uniformity, and overall process performance. These Apps are user-friendly and require only equipment know-how, eliminating the need for deep expertise in numerical methods. MatSight is set to revolutionize the industry by providing highly predictive, accurate results with swift delivery times.

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PLASUS GmbH

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+49 8233 7353780 www.plasus.de

PLASUS is a worldwide leading manufacturer of plasma monitor and process control systems for low-pressure as well as atmospheric pressure plasma applications in productions lines as well as R&D. Our turnkey solution are the first choice for plasma analysis, optimization of plasma processes and active process control, like reactive sputtering, HIPIMS, endpoint detection, quality control and fault detection. PLASUS provides also a variety of in-vacuum optics components with coating protection device suitable for heavy duty applications and with low maintenance time. Our cutting-edge solutions are well established in all coating markets, e. g. optical industry, hard coatings, decorative coatings, solar cells, architectural glass industry etc..

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PLATIT AG – Advanced Coating Systems

Eichholzstrasse 9, CH-2540 Selzach, Switzerland
Andreas Lümkemann a.luemkemann@platit.com
+41 32 5446200, Mobile +41 78 6597238 www.platit.com

PLATIT is an independent, family-owned company headquartered in Selzach, Switzerland as well as a leading manufacturer of high-tech PVD and PECVD hard coating equipment for tools and machine components. With over 650 installed systems worldwide, own service, support and sales offices in Europe, North America and Asia, PLATIT maintains close partnerships with its customers.

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PREVAC sp. z o. o.

Raciborska Str. 61, 44 – 362 Rogów, Poland
Przemysław Hajduga p.hajduga@prevac.pl
+48 32 459 2000 www.prevac.eu

PREVAC is a world leading manufacturer of deposition and analysis systems based on vacuum technology dedicated for the investigation of chemical and physical properties of solid state surfaces, thin films and nanomaterials. The company designs, manufactures and delivers complete research systems and components, electronic devices and software dedicated to handling PREVAC's products as well as other manufacturers. The company is very well known of custom solutions.

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PVT Plasma und Vakuum Technik GmbH

Rudolf-Diesel-Str. 7, 64625 Bensheim, Germany
Dr. Herbert Gabriel, Winfried Dölling h.gabriel@pvtvacuum.de
+49 6251 8565610 www.pvtvacuum.de

PVT is a leading manufacturer of industrial PVD equipment for hard, wear-, and erosion-resistant as well as tribological coatings.
In order to support the transition to a CO_2-free energy industry based on H_2-Technology, PVT has developed and built different types of in-Line Coating systems for high-industrial throughput coating of bipolar plates, GDL, PTL and other components of fuel cells and electrolyzers.
Our coating technology optimizes conductivity and corrosion behavior of BiPs to extend live under demanding operation conditions.

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RHP-Technology GmbH

Forschungs- und Technologiezentrum, 2444 Seibersdorf, Österreich
DI Dr. Lukas Zauner info@rhp.at
+43 2255 20600 www.rhp.at/de

RHP-Technology has more than 30 years of experience in powder technology and is specialized in the production of customized PVD target materials. Every day, tailored target compositions are produced, processed, and successfully used worldwide in both sputtering and arc evaporation processes, with applications across various industries such as semiconductor, optics, tribology, machining and others. State-of-the-art production technologies such as spark plasma sintering enable RHP to fulfill highest customer requirements and expectations in terms of material selection, purity, microstructure and target geometry – whether for individual targets or series production.
Are you looking for customized targets »on-demand«? Let's get in touch!

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robeko GmbH & Co. KG

An der Heide 3 B, 67678, Mehlingen, Germany
Christoph Müller mueller.christoph@robeko.de
+49 160 93526421 www.robeko.de

robeko is a supplier of components and materials as well as a technology partner for sputter deposition. We are European distributor for the cutting-edge products of our partners Sputtering Components Inc., Ionautics, House of Plasma, Sairem, ICS, PLASUS, IONICS, Magpuls and TFC GmbH.

robeko provides planar and rotatable sputtering targets and bonding services for tribological, decorative and optical applications. We are proud of our in house manufacturing capabilities for cast planar targets and planar target bonding. As a technology partner our capabilities are ranging from feasibility studies and layer development to upscaling and process transfer into industrial production.

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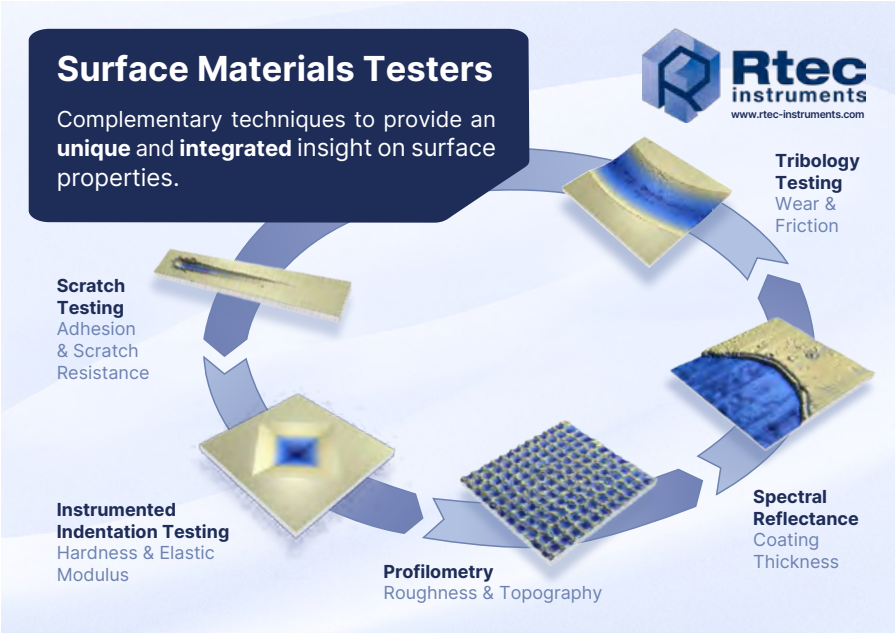
Rtec-Instruments

Chemin des Taborneires 4. Box 115, 1350 Orbe, Switzerland
Philippe KEMPE philippe.kempe@rtec-instruments.com
+41 2455 20260 www.rtec-instruments.com

Rtec-Instruments develops and manufactures advanced mechanical and surface testing equipment for measurement solutions in research and industrial applications: Tribometers, Fretting Testers, Surface Materials Testers with Indentation and Scratch Testing, 3D-Profilometers.

Rtec-Instruments specializes in combining techniques which provide a unique perspective in materials testing.



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Rübig GmbH & Co KG

Durisolstrasse 12, 4600 Wels, Austria
DI Thomas Müller (MSc) thomas.mueller@rubig.com
+43 7242 29383 www.rubig.com

RUBIG – Adapted to customer requirements layer by layer.

RUBIG is your international partner for high-quality coating solutions and a leader in the field of surface finishing. We offer plasma nitriding, PACVD and PVD coating systems as well as a wide range of customized solutions. We develop individual surface solutions for the applications and challenges of our customers to ensure the longevity of their products – both in the service sector and in plant engineering with worldwide sales. Our customers rely on our extensive knowledge of materials and applications. We understand what matters!

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SAIREM

82 Rue Elisée Reclus 69150 Décines-Charpieu, France
Nathalie Celle welcome@sairem.com
+33 472 018160 www.sairem.com

For more than 45 years, Sairem has been innovating and developing new processing solutions for industry. The company offers the most advanced range of thermal processing and plasma generation systems based on its expertise in simulation / modeling and its knowledge. Sairem provides a new patented generation of solutions that combine solid-state generators and cutting-edge plasma sources, offering new features for high-precision deposition or etching.

Sairem advises its customers and provides them with high performance solution to address new markets as gas abatement, methane pyrolysis, turquoise hydrogen ...

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scia Systems GmbH

Clemens-Winkler-Str. 6c, 09116 Chemnitz
Andrea Schulze sales@scia-systems.com
+49 371 335610 www.scia-systems.com

scia Systems is a technology leader in thin-film processing equipment based on advanced ion beam and plasma technologies. The systems are applicable for coating, etching, and cleaning processes, especially for the MEMS, microelectronics, and precision optics industries. Due to their flexible and modular design, the process equipment can be configured according to customer-specific requirements for research applications as well as high-volume production in either a »cluster« or »inline« configuration. Together with worldwide service partners, scia Systems offers comprehensive service and superior technology support.

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SINDLHAUSER MATERIALS GMBH

Daimlerstrasse 68, 87437 Kempten, Germany
Ulrich Schmoll info@sindlhauser.de
+49 831 9604580 www.sindlhauser.de

Trust our know-how! Since 1995, Sindlhauser is supplying a wide variety of materials for various coating processes to industrial companies all over the world. Our expertise: sputter targets, LaB6 ceramics and cathodes, suspensions, granules / evaporation raw materials, oils and grease. Rely on our supply chains! Our international network of competent partner companies ensures safety and reliability with regards to the availability of required materials. Sustainability is a topic for all of us!
Give targets a second chance. We rely on recycling and return materials back to the cycle. Let's develop something new together! Join and talk to our experts who will drive developments together with you.

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SINGULUS TECHNOLOGIES AG

Hanauer Landstraße 103, 63796 Kahl, Germany
Dirk Beisenherz dirk.beisenherz@singulus.de
+49 170 3570931 www.singulus.com

SINGULUS TECHNOLOGIES – Thin-Film Coating and Surface Treatment
SINGULUS TECHNOLOGIES develops and assembles innovative machines and systems for efficient thin-film coating and surface treatment processes, which are used worldwide in the Photovoltaics, Semiconductor, Medical Technology, Packaging, Glass & Automotive as well as Battery & Hydrogen markets.

The company's core competencies include various processes of coating technology (PVD sputtering, PECVD, evaporation), surface treatment as well as wet-chemical and thermal production processes.

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Sputtering Components

375 Alexander Drive, Owatonna, MN 55060, USA
John Schmeling jschmeling@sputteringcomponents.com
+01 (507) 4559140 www.sputteringcomponents.com

With its roots in the thin film industry, our design team understands the frustration that unpredictable equipment can bring. Building upon that experience, we have thousands of rotary sputtering cathodes operating in vacuum coaters worldwide ... day in, day out.
So, whether you apply thin films to glass, display or touch screens, solar panels, automobile components, decorative hardware, optics or electronics, you can be confident when you choose our rotary magnetron sputtering systems.

Our innovative products provide high uniformity, long campaign times and the lowest cost of ownership.

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Teer Coatings Ltd

West Stone House, Berry Hil Ind Estate, Droitwich, Worcs, WR9 9AS,UK
Wayne Southall wayne.southall@teercoatings.co.uk
+44 1905 827550 www.teercoatings.co.uk

Teer Coatings Limited is a leading provider of advanced surface engineering solutions, specialising in the application of cutting-edge coatings to enhance the performance and durability of diverse materials. Utilising state-of-the-art physical vapor deposition (PVD) Magnetron Sputtering, the company excels in depositing thin films with tailored properties.

These coatings exhibit exceptional characteristics like high hardness, wear resistance, and corrosion protection, contributing significantly to various industries, including aerospace, Motorsport, Sensors and industrial sectors.

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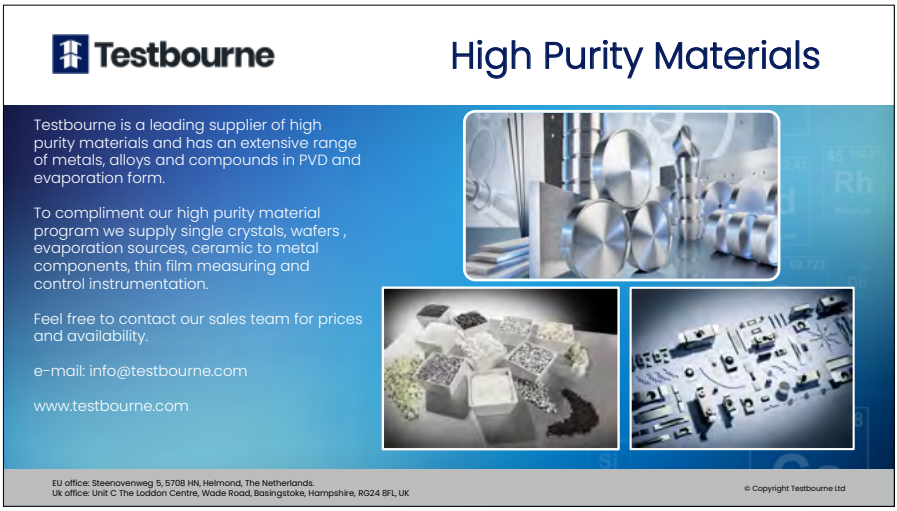
Testbourne b.v.

Steenovenweg 5, 5708 HN, Helmond, the Netherlands
Peter van Hoeck peter@testbourne.com
+44 1256 467055 www.testbourne.com

Testbourne is a leading supplier for over 45 years in high purity coating metals, alloys & compounds for R&D and industries.
Testbourne supplies an extensive selection of materials available in fabricated forms including sputtering/arc targets, evaporation materials, powders, wire, rods & sheets. For your evaporation requirement we also supply evaporation sources, multi-strand filaments, wire baskets, boats and crucibles. Testbourne also accommodate any custom requirements you may have. Testbourne is the representative for some of the world's leading scientific instrument manufacturers that include QCM Technology, Sample Preparation Equipment, Microwave and Radio Frequency Systems, UHV Components and Thin Film Technology.



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TFC GmbH

Robert-Bosch-Str. 11, 72661 Grafenberg, Germany
Tillmann Koebcke contact@tfc-gmbh.eu
+49 7123 93666 www.tfc-gmbh.eu

TFC GmbH designs and manufactures the IONIX® high quality planar magnetron sputtering sources for R&D, production and high-end coating systems. There is business confidence from respected research institutes and reputable system integrators. IONIX® magnetrons are well known for their reliability by design. We supply circular magnetrons for high vacuum and UHV-systems with diameters 1,25" – 12", FFE magnetrons and rectangular magnetrons of different widths and up to 4 m length. We design on request rectangular magnetrons for cantilever mounting, for RF-high power service, full UHV versions or near-UHV models.
We provide assistance on power supplies and monitoring techniques for reactive sputter deposition processes and HiPIMS sputtering.

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TRUMPF Hüttinger GmbH + Co. KG

Bötzingerstraße 80, 79111 Freiburg, Germany
Anja Matt anja.matt@trumpf.com
+49 761 89710 www.trumpf-huettinger.com

TRUMPF Hüttinger is a high-tech company and a leading global manufacturer of DC, medium-frequency, high-frequency and semiconductor-based solid-state microwave generators.

The business divisions include plasma technology, industrial heating, battery inverter systems as well as microwave generators and amplifiers. These process power supplies are being used in many key processes in research, development and production. As a part of TRUMPF – technology leader of industrial lasers and machine tools – TRUMPF Hüttinger is headquartered in Freiburg/Germany and has sales and service branches in Europe, US and Asia providing a global IoT based service support.

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VAT Deutschland GmbH

Seelistrasse 1, 9469 Haag, Switzerland
de@vatvalve.com
www.vatvalve.com

We change the world with vacuum solutions – that is our purpose as the worlds leading supplier of high-end vacuum valves.
The Group reports in two segments: Valves and Global Service. The Valves segment is a global developer, manufacturer and supplier of vacuum valves for the semiconductor, displays, photovoltaics and vacuum coating industries as well as for the industrial and research sector. Global Service provides local expert support to customers and offers genuine spare parts, repairs and upgrades. VAT reported net sales of CHF 885 million in 2023 and employs some 2,700 people worldwide, with representatives in 29 countries and manufacturing sites in Switzerland, Malaysia and Romania.

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VON ARDENNE GmbH

Am Hahnweg 8, 01328 Dresden, Germany
sales@vonardenne.com
+49 351 2637300 www.vonardenne.com

VON ARDENNE offers vacuum coating equipment for applications such as MEMS, sensors, optoelectronics, advanced packaging, power devices, photonics, and semiconductors. For fuel cell and electrolyzer manufacturing, we offer coating solutions for highly conductive, corrosion resistant coatings on metal bipolar plates. Due to their flexible design, our systems cover a wide range of applications for customers. It ranges from research and development to pilot production and high-volume production. Furthermore, VON ARDENNE is a partner in developing new technologies. This includes implementing them with customized vacuum coating systems. VON ARDENNE is represented in seven locations in Europe, Asia, and North America.

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W&L Coating Systems GmbH

Bingenheimer Str. 32 | 61203 Reichelsheim | Germany
Dr. Michael Liehr m.liehr@wl-coating.com
+49 177 6503838 www.wl-coating.com

W&L Coatings Systems GmbH provides comprehensive expertise in vacuum thin film deposition and surface modifications. This comprises competitive cylindrical cantilevered magnetron sputter cathodes of a very compact design for small and medium scale applications (<1,000 mm in length, <25 kW power) and microwave PECVD systems for the high and low temperature deposition of diamond films, diamond single crystals, vertical graphene and related materials. The company has also developed a production line for boron doped diamond coated electrodes for waste-water treatment, ozone production and other electrochemical applications.

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EFDS

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European Society of Thin Films

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FABF – energy, optic, electronic

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We gladly give you advise.

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APPENDIX

List of Exhibitors

List of Participants

Plan of Trade Fair Erfurt

Plan of Exhibition I

Plan of Exhibition II

Conference Schedule

List of Exhibitors

as at August 15, 2024

List of Participants

Abad, Manuel David | Sarria Chemical Institute – University Ramon Llull, Barcelona, Spain

Adam, Caroline | Institute of Experimental and Applied Physics, Kiel University, Kiel, Germany

Ahangarani Farahani, Farzaneh | Gent university, GENT, Belgium

Albert, David | Advanced Energy, Metzingen, Germany

Alfonso de Miguel, Iker | UPNA, Pamplona, Spain

Almtoft, Klaus Pagh | Danish Technological Institute, Aarhus C, Denmark

Alyousef, Haifa A. | Princess Nourah bint Abdulrahman Company, Institution, Riyadh, Saudi Arabia

Amberg, Martin | Empa, St. Gallen, Switzerland

An, Sehoon | Leibniz Institute for Plasma Science and Technology, Greifswald, Germany

Anders, André | Leibniz Institute of Surface Engineering (IOM), Leipzig, Germany

Araujo, Avelar, Juliano | MAHLE, Coimbra, Portugal

Arefi-Khonsari, Farzaneh | Sorbonne-University, Paris, France

Arnaud Lucas, Valentin | ICS, Forville, Belgium

Atmane, Soumya | GREMI / Université d'Orléans, ORLEANS, France

Awakowicz, Peter | Ruhr-Universität Bochum, Bochum, Germany

Bagcivan, Nazlim | Schaeffler Technologies AG & Co. KG, Herzogenaurach, Germany

Bandorf, Ralf | Fraunhofer IST, Braunschweig, Germany

Barillas-Mora, Laura | Leibniz-Institut für Plasmaforschung und Technologie e. V., Greifswald, Germany

Baroch, Pavel | University of West Bohemia, Plzen, Czech Republic

Barrera Marin, Maria Isabel | Fraunhofer FEP, Dresden, Germany

Bartali, Ruben | Fondazione Bruno Kessler, Trento, Italy

Barth, Stephan | Fraunhofer FEP, Dresden, Germany

Barton, Dennis | Fraunhofer IST, Braunschweig, Germany

Bartzsch, Hagen | Fraunhofer FEP, Dresden, Germany

Becker, Frank | Brooks Instrument GmbH, Dresden, Germany

Beckers, Manfred | VAT Deutschland GmbH, Dresden, Germany

Beike, Pascal | Aurion Anlagentechnik GmbH, Seligenstadt, Germany

Beisenherz, Dirk | Singulus Technologies AG, Kahl am Main, Germany

Beladiya, Vivek | Plasma Electronic GmbH, Neuenburg am Rhein, Germany

Bensalem, Dhia | Plasmatreat GmbH, Steinhagen, Germany

Beyer, Julian | boltzplatz – numerical plasma dynamics GmbH, Stuttgart, Germany

Biliak, Kateryna | Charles University, Prague 8, Czech Republic

Böbel, Klaus | Oerlikon Surface Solutions, Balzers, Liechtenstein

Bobzin, Kirsten | Institut für Oberflächentechnik, RWTH Aachen University, Aachen, Germany

Bolvardi, Hamid | PLATIT AG, Selzach, Switzerland

Bolz, Stephan | CemeCon AG, Würselen, Germany

Bonet, Raül | FUNDACIO EURECAT, Cerdanyola del Valles, Spain

Borris, Jochen | Fraunhofer IST, Braunschweig, Germany

Braceras, Iñigo | FUNDACION TECNALIA, Donostia, Spain

Brand, Carola | Fraunhofer IST, Braunschweig, Germany

Bresser, Marc | Universität Stuttgart, Stuttgart, Germany

Brinkmann, Ralf Peter | Ruhr-Universität Bochum, Bochum, Germany

Bristow, Adam | Megatech GmbH, Dresden, Germany

Britun, Nikolay | Nagoya University, Nagoya, Japan

Brizuela, Marta | TECNALIA, Donostia-San Sebastian, Spain

Brögelmann, Tobias | IHI Ionbond Netherlands B.V., Venlo, Netherlands

Broniszewska-Wojdat, Paula | Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland

Brunner-V. Zeppelin, Bettina | Fraisa SA, Bellach, Switzerland

Burgstaller, Wolfgang | voestalpine Stahl GmbH, Linz, Austria

Burmeister, Frank | Fraunhofer IWM, Freiburg, Germany

Cada, Martin | Institute of Physics of the Czech Academy of Sciences, Prague 8, Czech Republic

Canzler, Tobias | Fraunhofer IWS, Dresden, Germany

Capek, Jiri | University of West Bohemia, Plzen, Czech Republic

Caro, Jaume | FUNDACIO EURECAT, Cerdanyola del Valles, Spain

Carvalho, Sandra | Universidade de Coimbra, Coimbra, Portugal

Cavaleiro, Albano | FCTUC – Universidade de Coimbra, Coimbra, Portugal

Cavaleiro, Diogo | FCTUC – Universidade de Coimbra, Coimbra, Portugal

Cekada, Miha | Jozef Stefan Institute, Ljubljana, Slovenia

Chandraiahgari, Chandrakanth Reddy | Fondazione Bruno Kessler, Trento, Italy

Chang, Yin-Yu | National Formosa University, Yunlin, Taiwan

Chatterjee, Abhyuday | University of Mons, Mons, Belgium

Che, Honglong | Dalian University of Technology, Dalian, China

Cho, Namil | Sungkyunkwan University, Suwon, Korea

Christen, Jürgen | Otto von Guerricke Universität Magdeburg, Magdeburg, Germany

Claver Alba, Adrian | Universidad Pública de Navarra (UPNA), PAMPLONA, Spain

Coelho, Lorena | CENTITVC, Vila Nova de Famalicão, Portugal

Colombo, Simone | Kenosistec, Casarile, Italy

Copplestone, Stephen | boltzplatz – numerical plasma dynamics GmbH, Stuttgart, Germany

Cumia Espinosa de Los Monteros, María de La Paz | Nano4energy, Madrid, Spain

Curda, Pavel | Jihočeská Univerzita v Českých Budějovicích, České Budějovice, Czech Republic

Czerwiec, Thierry | Institut Jean Lamour Université de Lorraine, Nancy, France

Dahmen, Ralph | CemeCon AG, Würselen, Germany

Dalibon Bähler, Eugenia Laura | National University of Technology, Faculty of Concepción del Uruguay, Concepción del Uruguay, Argentina

Dalke, Anke | TU Bergakademie Freiberg, Freiberg, Germany

Dantinne, Robin | UMons (Université de Mons), Mons, Belgium

de Brabander, Johanna | IONICS, Liers, Belgium

Debrabandere, Andreas | Ghent University, Gent, Belgium

Decker, Ludwig | Fraunhofer FEP, Dresden, Germany

Del Sole, Regina | University of Bari Aldo Moro, Bari, Italy

Delfin, Francisco Andres | University of Applied Sciences Upper Austria, Wels, Austria

Demmler, Matthias | Fraunhofer IWU, Chemnitz, Germany

Dempwolf, Henry | DOT GmbH, Rostock, Germany

Di Gregorio, Giulia | Fondazione Bruno Kessler, Povo, Italy

Dietrich, Denis | HORIBA Europe GmbH, Oberursel, Germany

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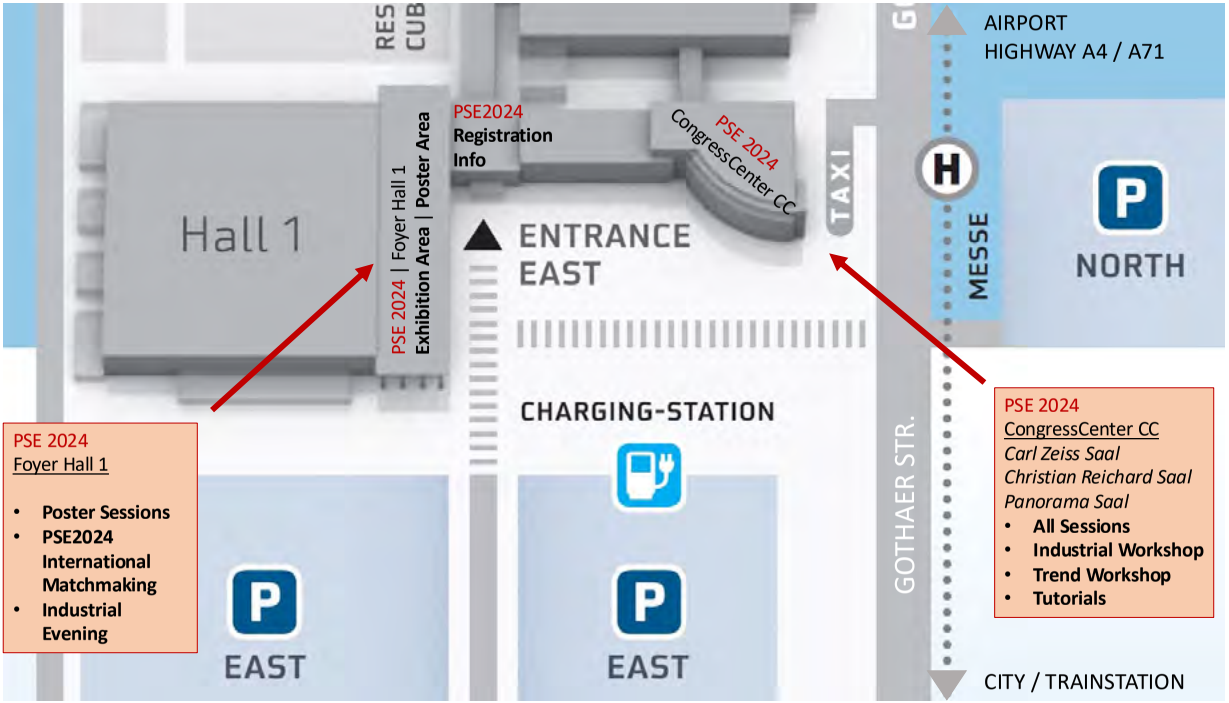
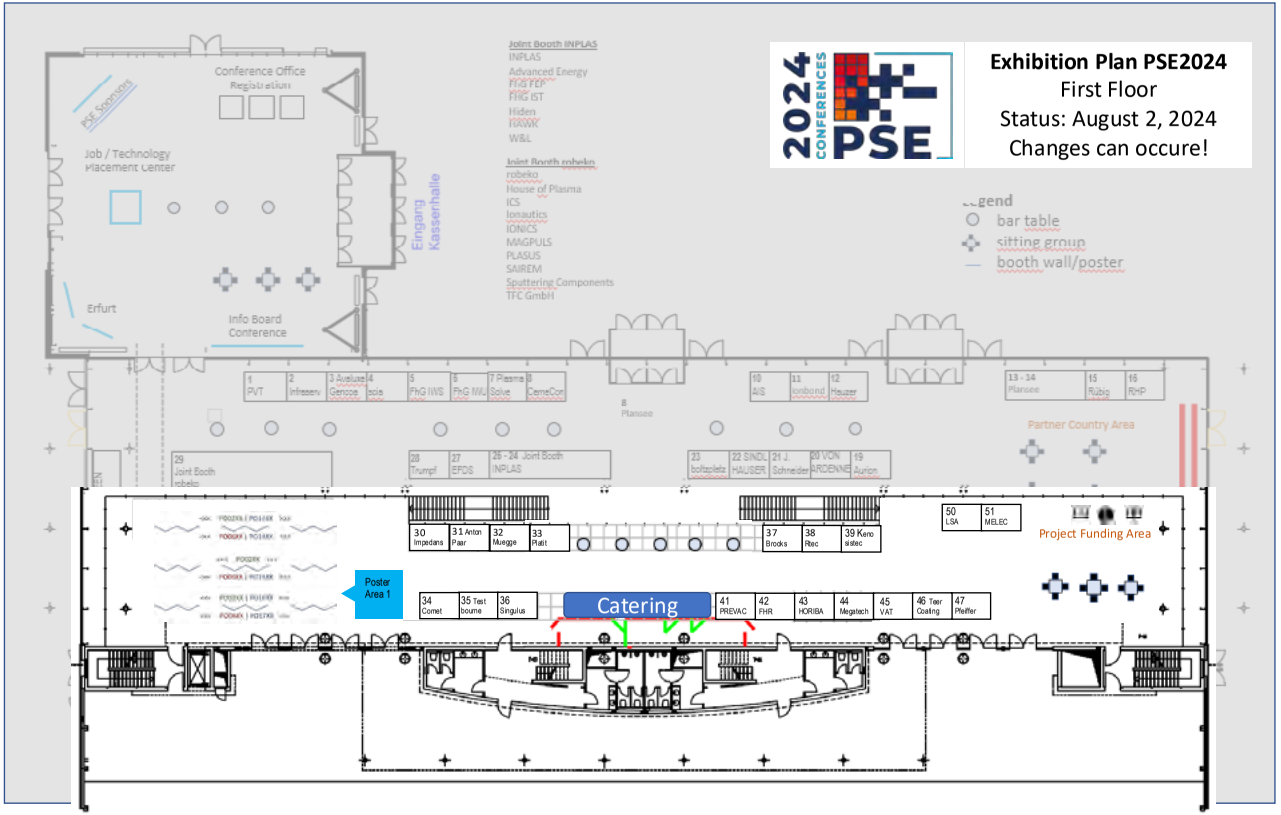
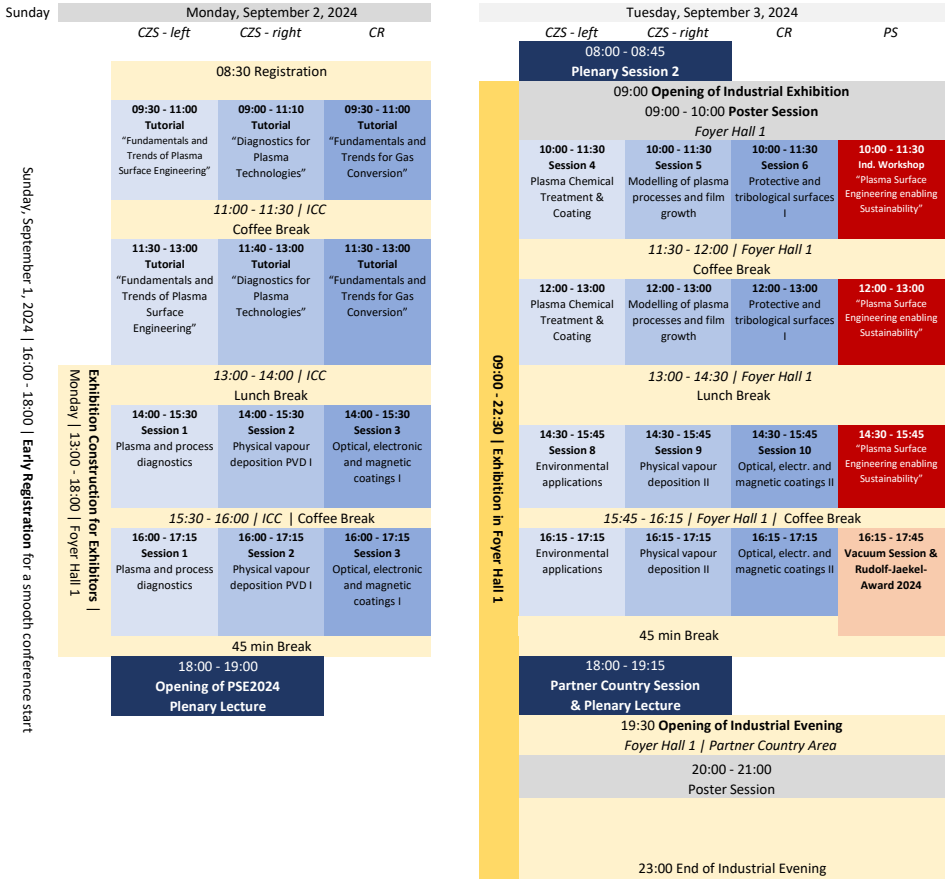


Plan of Exhibition I


Exhibition Plan PSE2024
First Floor
Status: August 2, 2024
Changes can occure!
2024 CONFERENCES PSE
Conference Office
Registration
PSE Sponsors
Job / Technology Placement Center
Erfurt
Info Board Conference
Eingang Kasserhalle
Joint Booth INPLAS
INPLAS
Advanced Energy
FHG FEP
FHG IST
Hiden
HAWK
W&L
Joint Booth robeko
robeko
House of Plasma
ICS
Ionautics
IONICS
MAGPULS
PLASUS
SAIREM
Sputtering Components
TFC GmbH
Legend
bar table
sitting group
booth wall/poster
Partner Country Area
Project Funding Area
Poster Area 1
Catering

Conference Schedule

PSE2024
19th International Conference on Plasma Surface Engineering
September 2 - 5, 2024 | Trade Fair Erfurt, Germany



Wednesday, September 4, 2024

CZS - left	*CZS - right*	*CR*	*PS*
08:00 - 08:45 **Plenary Session 4**			
09:00 **Industrial Exhibition** 09:00 - 10:00 **Poster Session** *Foyer Hall 1*			
10:00 - 11:30 **Session 12** Biomedical and agriculture applications	**10:00 - 11:30** **Session 13** Physical vapour deposition III	**10:00 - 11:30** **Session 14** Analytics of film structures and properties	**10:00 - 11:30** **Trend Workshop** "Hydrogen Technologies"
11:30 - 12:00 | Foyer Hall 1 Coffee Break			
12:00 - 13:00 Biomedical and agriculture applications	**12:00 - 13:00** Physical vapour deposition III	**12:00 - 13:00** Analytics of film structures and properties	**12:00 - 13:00** "Hydrogen Technologies"
13:00 - 14:30 | Foyer Hall 1 Lunch Break			
14:30 - 15:45 **Session 16** Other Plasma based Processes	**14:30 - 15:45** **Session 17** Gas conversion processes	**14:30 - 15:45** **Session 18** Plasma treatm., cleaning and etching	**14:30 - 15:45** **Session 19** Protective and tribological surfaces III
15:45 - 16:15 | Foyer Hall 1 | Coffee Break			
16:15 - 17:00 Other Plasma based Processes	**16:15 - 17:00** Gas conversion processes	**16:15 - 17:00** Plasma treatm., cleaning and etching	**16:15 - 17:00** Protective and tribological surfaces III
30 min Break			
17:30 - 18:15 **Plenary Session 5**			

09:00 - 16:15 | Exhibition in Foyer Hall 1 | Free Access for Visitors

19:00 - 22:30
Conference Dinner
Kaisersaal Erfurt
separate Ticket required!

Thursday, September 5, 2024

CZS - left	*CZS - right*	*CR*
08:00 - 09:15 **Award Session** & Award Lecture		
30 min Break		
09:45 - 11:15 **Session 20** Atomic layer & nanoparticle deposition	**09:45 - 11:15** **Session 21** Batteries and green hydrogen	**09:45 - 11:15** **Session 22** Protective and tribological surfaces II
11:15 - 11:45 | ICC Coffee Break		
11:45 - 13:00 Atomic layer & nanoparticle deposition	**11:45 - 13:00** Batteries and green hydrogen	**12:45 - 13:00** Protective and tribological surfaces II

13:00 End of the Conference

14:00 - 17:00
EFDS General Assembly 2024
EFDS members only
Save the Date

Legend	
CZS	Carl Zeiss Saal
CR	Christian-Reichard Saal
PS	Panorama Saal

We are looking forward seeing you at
PSE 2026 | August 31 – September 3, 2026

20th International Conference on
Plasma Surface Engineering
Conference and Exhibition