

## Abstract Submission

Contributed abstracts from universities, institutes and industry are welcome. Recent developments and progress in the listed areas can be presented at the conference.

Abstracts can be submitted for oral or poster presentations.

### Conference Topics

#### 1 Plasma and ion surface engineering Plasma and ion source technologies

- New ion and plasma sources
- Pulsed plasmas including HiPIMS and pulsed arc
- Industrial source technology

#### Plasmas in liquids

##### Atmospheric plasmas

- Arcjet and torch plasmas
- Coronas
- Dielectric barrier discharge
- Microplasmas

##### Particles and powders in plasmas

- Particle load control and avoidance
- Nanoparticle synthesis
- Particle treatment and functional nanoparticles

#### 2 Surface modification technologies

##### Plasma diffusion technologies

##### Plasma treatment, cleaning and etching

- Principles of plasma surface interaction
- Surface cleaning and functionalization by plasma and radiation (UV, Laser)
- Effects on adhesion and bonding
- Plasma etching, pattern transfer and related effects

**Abstract Submission Deadline:**  
January 31, 2020

##### Physical vapor deposition – PVD

- Magnetron sputter deposition
- Vacuum arc deposition
- Plasma-activated evaporation

##### (Plasma-enhanced) Chemical vapor deposition – (PE)CVD

- Low pressure and atmospheric plasma CVD
- Plasma polymerization
- Atomic layer deposition ALD

##### Other plasma-based surface processing technologies

- Ion beam deposition and ion beam etching
- Ion and plasma immersion implantation
- Hybrid processes



#### 3 Coating applications and properties

##### Protective and tribological coatings

- Effects on standard tribological coatings
- Carbon based hard coatings
- Corrosion resistant coatings
- Large area scratch resistant coatings
- Barrier coatings for sensitive devices

##### Optical coatings

- Multilayer coatings from EUV to IR
- Interface and barrier engineering
- End point detection methods

##### Electrical and magnetic coatings

- Electrical isolation coatings
- Electrical contact coatings including conductive and photocatalytic oxides
- Sensors based on electrical effects
- Electrochromic and thermochromic coatings
- Magnetic coatings including magnetic multilayers
- Piezoelectric films for frequency filters and ultrasonic applications
- Structuring of electrical and magnetic coatings and related effects



##### Biomedical & biological applications

- Agriculture
- Biocompatible and biodegradable coatings
- Biofunctionalization of surfaces
- Plasma activated media
- Plasma medicine

##### Energy production related coatings

- Coatings for photovoltaics and new cell concepts
- Piezoelectric and thermoelectric films for energy harvesting
- Films for batteries and supercapacitors
- Coatings for fuel cell applications
- Hydrogen generation

##### Quantum technologies

#### 4 Characterization and simulation of films and processes

##### Simulation and modelling of growth, structure and properties

##### Simulation of plasma processes

##### Properties of technological plasmas

- Plasma diagnostics and related process control
- Plasma modelling

##### Analytics of film structures & properties

- Chemical and crystal composition
- Geometrical and mechanical characterization (thickness, roughness, stress)
- Optical properties
- Electric and magnetic properties

##### Methods of in-situ process diagnostics

- In-situ control and adjustment of film properties
- Process end-point detection



##### Scientific Program

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University of West Bohemia  
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## PSE Awards & Partner Country

Outstanding persons from the field of plasma and ion surface engineering can be nominated for the PSE Awards. Participants from our Partner Country Czech Republic will have the possibility to present their profile in an outstanding way.

### PSE Awards

At PSE 2020 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 Carrier Award** for their work and engagement in the field.

**Awards:**  
PSE Leading Scientist Award  
PSE Early Carrier Award

**Nomination Procedure**  
[www.pse-conferences.net](http://www.pse-conferences.net)

**Nomination Deadline:**  
January 31, 2020

### Partner Country – Czech Republic



Researchers and people from industry coming from Czech Republic are particularly asked to send contributions to PSE 2020. Czech partners will be presented in a special way at the conference website and in the exhibition.

The Workshop „**Plasma-Based Synthesis of Nanomaterials**“ will take place at February 10–11, 2020 in Prague, Czech Republic. More information about the program and registration you can find online: [kmf.troja.mff.cuni.cz/pse/](http://kmf.troja.mff.cuni.cz/pse/)

These activities are supported by the Czech Vacuum Society.

### Smart Mind Pitch

During this session researchers are invited to present fancy ideas for research projects in the field of the conference main topic „Plasma Technology for New Energy Concepts“.

### International Program Committee

F. Arefi-Khonsari, Paris (F)  
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G. Van der Kolk, Venlo (NL)  
J. Vlcek, Plzen (CZ)

17<sup>th</sup>

# International Conference on Plasma Surface Engineering

September 6–11, 2020  
Garmisch-Partenkirchen  
Germany



[www.pse-conferences.net](http://www.pse-conferences.net)

➤ Conference & Exhibition  
➤ Call for Abstracts

**Special Topic:**  
**Plasma Technology  
For New  
Energy Concepts**



Scope of the Conference

PSE 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. In 2018 nearly 800 participants from all over the world visited the conference.

PSE provides an opportunity to present recent progress in research and development, and in industrial applications. Its topics span a wide range from fundamentals such as 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 a large fraction of participants from industry (36% in 2018), 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.

Topic Special

„Plasma Technology for New Energy Concepts“



PSE 2020 will be dedicated to „Plasma Technology for New Energy Concepts“. The development of new energy concepts has accelerated, with a lot of industrial effort dedicated to it. The reduction of CO2 footprint by efficiency improvements, energy storage concepts, usage of hydrogen as fuel, all require dedicated surface solutions. They will be addressed in many scientific and technological contributions allocated to the conference topics. The more applied aspects of new energy concepts will be shown and discussed in the industrial workshop.

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

Michael Thomas (Chairman)  
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Germany

Tutorials

Tutorials at PSE 2020 will give you the opportunity to learn more about the background of Plasma Surface Technologies and related materials. The events are organized by different partners.

Fundamentals and Trends of Plasma Surface Processing  
Sunday, September 6, 2020

The tutorial will cover the fundamentals of selected modern plasma processes and their applications in research and industry. The lectures will be given by internationally recognized senior scientists.

Organized by:  
PLASMA GERMANY & EFDS



Chaired by:  
Christian Oehr, Fraunhofer-Institut für Grenzflächen- und Bioverfahrenstechnik IGB, Stuttgart, Germany

Pulsed Plasmas and Their Applications  
Sunday, September 6, 2020

The tutorial will start with a fundamental overview of pulsed plasmas. An introduction will be given on electronics to provide and control pulsed plasmas. Practical hardware will be described for pulsed plasma nitriding, pulsed magnetron, HIPIMS, plasma assisted CVD and pulsed arc, followed by applications of pulsed plasmas in above mentioned areas.

Organized by:  
Gerrit Jan van der Kolk, Ionbond Netherlands and Daniel Lundin, Paris-Sud University, Paris, France

Processing on Flexible Glass – Challenges and Opportunities (SVC C-341)  
Thursday, September 10, 2020

The focus of the tutorial is pointing out critical parameters of thin-film sputter deposition for an improved handling and performance of flexible glass. It will show possible pathways forward for optimized thin film processing on flexible glass. The tutorial course concludes with a detailed discussion of the challenges, chances and solutions of flexible glass processing.



Organized and chaired by:  
Manuela Junghänel, Fraunhofer FEP, Dresden, Germany  
in cooperation with  
The Society of Vacuum Coaters (SVC) & EFDS

Tutorial Registration Fees

Regular	350 €
Students	140 €

This registration is only valid for the particular tutorial ordered

Industrial Program

PSE conferences are visited by a high number of industrial partners. The industrial program shall address especially application related aspects of the technology. The events give the opportunity for product presentation and networking.

Industrial Workshop: Plasma Technology for New Energy Concepts  
Wednesday, September 9, 2020

The Industrial Workshop focuses on Plasma Technology for New Energy Concepts like Hydrogen Generators, Fuel Cells, Batteries. Speakers from the industry will discuss the contribution of plasma surface technologies enabling them to become cost competitive with traditional technologies. Topics include reducing corrosion sensitivity of bipolar plates in fuel cells by coating, reducing hydrogen embrittlement of titanium parts in electrolyzers, new devices to produce hydrogen directly in solar cells, expected further developments in batteries.

Organized and chaired by:

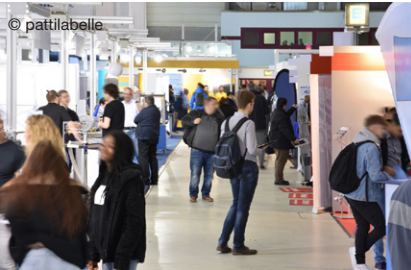
Gerrit Jan van der Kolk, Ionbond Netherlands

Industrial Evening:  
Tuesday, September 8, 2020

The Industrial Evening will take place in the rooms of the exhibition. There participants and exhibitors can meet and have the chance for networking and fruitful discussions.

Industrial Exhibition:  
Tuesday, September 8, 2020 & Wednesday, September 9, 2020

In the Industrial Exhibition manufacturing and service companies will find excellent opportunities to present their products and announce their services.



Social Events

Welcome Party  
Sunday, September 6, 2020  
Included in Conference Fee

Conference Dinner  
Wednesday, September 9, 2020  
Registration Fee: 79 €

Accompanying Person  
Registration Fee: 130 €

Incl. Welcome Party, Industrial Evening and Conference Dinner, but without conference program.

Conference Fees

The registration fee includes conference attendance, delegate bag with all information about the conference, admission to the industry exhibition, morning and afternoon coffee, the welcome party as well as the Industrial Evening.

Regular	
Early bird registration (before July 1, 2020)	690 €
Standard registration	850 €
Two-day registration	490 €
One-day registration	350 €

Students	
Early bird registration (before July 1, 2020)	290 €
Standard registration	350 €
Two-day registration for students	190 €

The two-day registration is only valid for two sequential conference days.  
Registration is possible via the conference website, after November 1, 2019.



Location

Congress Center  
Richard-Strauss-Platz 1A  
82467 Garmisch-Partenkirchen  
Germany

Management

European Society of Thin Films (EFDS)  
Dresden, Germany  
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Boards and Committees

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PSE 2020 is supported by

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International Scientific Committee  
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