



PT21 – Scientific Program

Book of Abstracts

<https://www.pt21-kiel.de/program>



Agenda

Time	Tuesday, 23-Sep-2025	Wednesday, 24-Sep-2025	Thursday, 25-Sep-2025
08:00	Registration & Coffee	Registration & Coffee	Registration & Coffee
09:00	Welcome Remarks (9:15)	Mihailova	Jaritz
09:30	Nizenkov	Busse	Music
10:00	Greiner	Nishime	Hans
10:30	Coffee Break	Coffee Break	Burghaus
11:00	Rudolph	Vahl	Closing Remarks & Optional Lunch Break
11:30	Thorwarth	Neidhardt	
12:00	Stamate	Flötgen	
12:30	Ellis	Zikán	
13:00	Lunch Break	Lunch Break	
14:00	Held	Krumpolec	
14:30	Sgonina	Knospe	
15:00	Koch	Winzer	
15:30	Refreshments & Poster Session	Coffee Break	
16:00		Niemann	
16:30		Melzer	
17:00	Awakowicz,	Refreshments	
17:30	Seeliger Prize		
18:00	Break / Transfer	Bogaerts,	
18:30		Diels-Planck Lecture	
19:00	Conference Dinner		
19:30		KINSIS Get-together	

Invited Talks and Award Lectures

Tuesday, 23-Sep-2025

9:30 Uhr	Paul Nizenkov	Open-source modelling of rarefied gas and plasma dynamics with PICLas: Step-by-step verification and application examples
10:00 Uhr	Franko Greiner	Charging in plasmas: material and form matter
11:00 Uhr	Martin Rudolph	Intentional excitation of spokes in magnetron sputtering discharges
11:30 Uhr	Kerstin Thorwarth	Role of PVD coatings in medical applications: Implants, tools and diagnostics
12:00 Uhr	Eugen Stamate	Metal oxide thin films by magnetron sputtering: challenges and applications
12:30 Uhr	James Ellis	Tacit Translation: From empirical art to predictive science in plasma processing
14:00 Uhr	Julian Held	Metal oxide reduction with hydrogen plasmas
14:30 Uhr	Kerstin Sgonina	Concept of an automated reactor for plasma-assisted catalysis
15:00 Uhr	Christian Koch	Obtaining CO-rich gas streams from CO ₂ point-sources
17:30 Uhr	Peter Awakowicz	Recent developments in the field of gas conversion with surface-DBD plasmas

Wednesday, 24-Sep-2025

09:00 Uhr	Diana Mihailova	Plasma matters for semicon industry
09:30 Uhr	Benedikt Busse	Cold Atmospheric Plasma (CAP) for treatment of badly healing wounds – Lessons from 15 years on the road to clinical routine
10:00 Uhr	Thalita Nishime	Plasma technologies for vertical farming
11:00 Uhr	Alexander Vahl	Low temperature plasmas for sustainable material synthesis and surface modification - From plasma-printing to bio-inspired electronics
11:30 Uhr	Jörg Neidhardt	Double ring magnetron sputtering – superior process control for high-rate, stress-controlled, single-phase AlScN piezo layers and polarity controlled AlN epitaxy
12:00 Uhr	Christoph Flötgen	Plasma activated wafer bonding – State of the art, opportunities and challenges
12:30 Uhr	Petr Zikán	MatSight: Turning Plasma Simulations into Engineering Tools
14:00 Uhr	Richard Krumpolec	Atmospheric plasma functionalization of materials: nitrogenation and amination of rGO for advanced water filtration membranes
14:30 Uhr	Alexander Knospe	Atmospheric pressure plasma in surface technology: Industrial applications and perspectives
15:00 Uhr	Tristan Winzer	Cold atmospheric plasmas for material synthesis: particle-free thin film deposition initiated by VUV photochemistry
16:00 Uhr	Jessica Niemann	Probing ion drag and electric field forces in CCRF plasmas with optical tweezers
16:30 Uhr	Marcel Melzer	Miniaturized plasma systems as enabler for novel sensor generations
17:30 Uhr	Annemie Bogaerts	Plasma catalysis: How to unravel the complex chemical and physical mechanisms?

Thursday, 25-Sep-2025

09:00 Uhr	Montgomery Jaritz	lonkraft – In 4 years from science to industrial application
09:30 Uhr	Denis Music	Primary and secondary properties of thermoelectric TiNiSn – from plasma to machine learning
10:00 Uhr	Marcus Hans	Perspective on pathways towards responsible surface engineering
10:30 Uhr	Hendrik Burghaus	Waste to syngas: plasma as an enabler for a circular carbon economy

Poster Contributions

P01	P. Erik Hofmeyer	A new facility dedicated to plasma-based gas conversion research at IRS
P02	Viktor Schneider	Electrostatic and calorimetric diagnostics of a gas aggregation source
P03	Daniel Zuhayra	A combination sensor for the diagnostic of particle and energy fluxes in process plasmas
P04	Marc Bresser	CO generation in an atmospheric microwave plasma torch
P05	Haythem Benamor	PKat4Chem – Non-thermal plasma catalysis for CO ₂ valorization
P06	Caroline Adam	Impact of the HiPIMS and RF superposition on a single magnetron on plasma dynamics and energy flux
P07	Ilija Stefanovic	Characterisation of SiO _x thin films deposited by remote high density atomic oxygen plasma source
P08	Thomas Strunskus	Influence of magnetron sputtering conditions on the early stages of growth of noble metals on different polymers
P09	Ryan Nguyen-Smith	Example mass balance of DRM via plasma catalysis
P10	Dave Ahrens	Bridging plasma and chemistry: Data-driven acceleration of sustainable catalysis
P11	Görkem Bilgin	Silicon nitride membrane as entrance window for plasma-induced vacuum ultraviolet radiation
P12	Marc Böke	Measurement of atomic oxygen densities and their transport using TALIF and SEA in a micro cavity array reactor for catalysis
P13	Sahitya Yarragolla	From plasma fabrication to device performance: Insights from sputtered resistive switching devices
P14	Johanna Vogt	3D EM-simulation of the influence of gaps and lattice structures in cavities on their resonance behavior to be applied in microwave cavity resonance spectroscopy
P15	Michael Zeuner	3D nanopatterning using ion beam etching
P16	Michael Zeuner	Structuring and uniformity improvement of thin-film lithium niobat and other waveguide materials
P17	Sandra Golebiowska	Surface analysis of the reactivity of plasma-activated polylactide films under ambient conditions
P18	Jean-Pierre van Helden	Novel techniques for plasma spectroscopy
P19	Jannik Schulz	Influence of frequency on ozone production using high-impedance transformers in air
P20	Ihda Chaerony Siffa	Machine learning applications in low-temperature plasma research beyond supervised learning
P21	Stefan Merli	Investigations of hydrogen plasmas from a microwave plasma source for metal foil pumps for fusion technology
P22	Jan Altanov	Deposition of thin corrosion-resistant plasma films on AA 2024 using an atmospheric pressure plasma jet
P23	Nils Schoeneweih	Streamer dynamics of a $\mu\text{s}/\text{ns}$ -pulsed surface dielectric barrier discharge
P24	Kushtrim Krasniqi	Analysis and comparison of swarm parameters in EUV induced plasmas
P25	Markus M. Becker	Plasma-KG: A semantic platform linking concepts, data, and knowledge for plasma technology
P26	Ronny Brandenburg	On carbon dioxide splitting in nonthermal plasmas at elevated pressures
P27	Henrik Zimmermann	In-situ determination of molecule concentrations in real time - key process indicators for the active control of plasma processes
P28	Hans Höft	Stepped high-voltage waveforms for controlling pulsed-driven dielectric barrier discharges
P29	Andreas Petersen	Microwave cavity resonance spectroscopy and double probe measurements as nanodusty plasma diagnostic tools
P30	Mikhail Gromov	NH and OH kinetics in nanosecond pulsed N ₂ :H ₂ O discharge at atmospheric pressure

Diels-Planck-Lecture 2025

The Priority Research Area KiNSIS »Kiel Nano, Surface and Interface Science« invites you to the ceremonial award of the Diels-Planck-Lecture Medal and Doctoral Thesis Awards.

Wednesday, September 24, 2025
Faculty of Engineering, Lecture Hall D, Kaiserstrasse 2, 24143 Kiel

- 17:30 Music »Bukatzen-Zurstraßen Duo«
- 17:35 Welcome Address
Professor Dr. Frank Kempken
Dean of the Faculty of Mathematics and Natural Sciences
- 17:40 Welcome Address & Introduction KiNSIS
Board of KiNSIS
- 17:45 **KiNSIS Doctoral Thesis Awards Ceremony**

Dr. rer. nat. Timo Fuchs
In situ X-ray Scattering Studies of the Electrooxidation of Platinum Single Crystal Electrodes

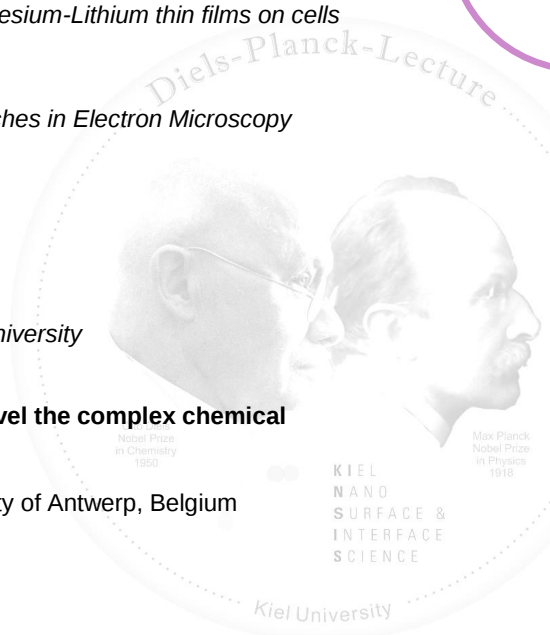
Dr. rer. nat. Jihao Wang
Support and size effect in catalytic ammonia decomposition and CO₂ hydrogenation

Dr.-Ing. Krathika Bhat
In vitro effects of degradable Magnesium-Lithium thin films on cells of the nervous system

Dr.-Ing. Ole Gronenberg
Exploring Complementary Approaches in Electron Microscopy for Neuromorphic Devices
- 18:15 Music »Bukatzen-Zurstraßen Duo«
- 18:20 **Diels-Planck-Lecture Ceremony**

Laudation
Professor Dr. Jan Benedikt, Kiel University
- 18:30 Diels-Planck-Lecture
» Plasma catalysis: How to unravel the complex chemical and physical mechanisms?«
Professor Dr. Annemie Bogaerts
Department of Chemistry, University of Antwerp, Belgium
- 19:30 Music »Bukatzen-Zurstraßen Duo«

Get-together in the foyer



V. 28.07.2025