

12th Czech-Austrian workshop: New trends in photo and electro catalysis

Programme

Wednesday, 1st October 2025

12.30 – 13.00 registration of participants

13.00 Welcome talk (Josef Krýsa)

Chair: Josef Krýsa

13.10 Š. Slapničar, G. Žerjav, A. Pintar

Utilization of Plasmonic Effects for Visible-light-driven Photocatalytic Environmental Applications

13.40 M. M. Ballari, M. Filip Edelmannová, R. Ricka, M. Reli, K. Kočí

Photocatalytic CO₂ Reduction in TiO₂ Slurries: Kinetics and Carbon Species Equilibrium

14.00 M. Baudys, J. Rusek, J. Krýsa

Photocatalytic Reduction of CO₂ on TiO₂ Based Materials

14.20 R. Ricka, B. Trindade Barrocas, M. F. Edelmannová, M. Reli, M. Łapinski, M.

Conceição Oliveira, A. C. Marques, K. Kočí

Mo-Modified CeO₂ and Microscaff[®] Composite as an Efficient Photocatalysts for CO₂ Photoreduction

14.40 – 15.10 coffee break

Chair: Albin Pintar

15.10 H. Krýsová, Z. Hubička, T. Imrich, M. Neumann-Spallart, J. Krýsa

In-situ and Ex-situ Sn Doping of Hematite Photoelectrodes

15.30 Z. Venkrbcová, Z. Hubička

ECWR-Assisted Pulsed Reactive Sputtering for Deposition of Semiconducting Oxide Thin Films Suitable for Photocatalysis

15.45 T. Imrich, M. Neumann-Spallart, H. Krýsová, H. Tarábková, J. Krýsa

Extension of the (Photo)Electrochemical Working Range of WO₃ Electrodes to pH 8 by ALD Coverage with TiO₂

16.05 T. Blecha, P. Džik, M. Králová, M. Veselý

Dual-phase WO₃ Films with Enhanced Macroporosity through Biotemplating

16.20 B. Radová, T. Imrich, Michael Neumann-Spallart, J. Krýsa

WO₃ And CuWO₄ Photoanodes for Photoelectrochemical Applications

16.35 J. Jablunka, N. Kotulková, M. Filip Edelmannová, B. Trindade Barrocas, K. Kočí

Advanced TiO₂ and CeO₂-based Photocatalysts for CO₂ Reduction

16.50 D. Varga, S. Pfaffel, J. Blaschke, H. Rabl-Wolff, D. Apaydin, D. Eder

Bimetallic and Alloy Catalysts for Electrocatalytic Conversion of CO₂ to Formic Acid

17.05 End of the session

19.00 Dinner

Thursday, 2nd October 2025

Chair: Ladislav Kavan

8.30 P. Dzik, M. Veselý

Structure-function Optimization of Printed Photoelectrochemical Cells

9.00 H. Krýsová, T. Imrich, H. Tarábková, P. Janda, J. Krýsa

Impact of Variations in ALD Procedure on Nanomorphology, Protecting Properties and Chemical Stability of Thin TiO₂ Films

9.20 J. Rusek, M. Neumann-Spallart, H. Krýsová, T. Ohno, J. Krýsa

CuBi₂O₄ Photocathodes for Solar-driven Reduction Reactions

9.40 J. Štěpánek, T. Bystron, Š. Paušová

Two-step Synthesis and Characterization of CuFeO₂ Thin Layers for Photoelectrocatalytic Applications

9.55 S. Pfaffel, N. Parak, D. Varga, H. Rabl-Wolff, S. Myakala, J. Blaschke, D. Apaydin, D. Eder

Formic Acid Photoelectroreforming over Bismuth Vanadate – Proof of Concept

10.10 D. Vojvoda, J. Hnát, K. Bouzek

Electrochemical Deposition of Nickel on Porous Electrodes

10.25 – 11.00 coffee break

Chair: Kamila Kočí

11.00 M. Paidar, V. Masojídek, V. Šram

Importance of Water Quality for Water Electrolysis

11.20 J. Volák, K. Vydrželová, P. Hladík, Š. Paušová

Development and Optimization of BiOX Photocatalysts for Environmental Pollutant Degradation

11.40 Z. Huang, Z. Wang, H. Rabl, S. Naghdi, Q. Zhou, Y. Yu, D. Eder

How Powerful is Ligand Engineering in Enhancing (Photo)Electrocatalytic Activity of Metal-organic Frameworks?

12.00 A. Karafiátová, J. Rusek, M. Baudys, J. Krýsa

Photocatalytic Oxidation of Organic Compounds in Air on Various TiO₂ Structures

12.15 M. Králová, M. Veselá, M. Veselý, P. Dzik

Resazurin Assay for Determining the Antimicrobial Activity of Photocatalytic Surfaces: Optimization and New Findings

12.35 End of the session

13.00 Lunch

14.30 – 19.00 Walk to the Thaya National Park, individual discussions

19.00 Common dinner

20.30 Wine degustation

Friday, 3rd October 2025

8.30 – 9.00 check out

Chair: Guenter Fafilek

9.00 L. Kavan

Dual Ion (Zn/Li) Battery with Water-in-Salt Electrolyte: The Emerging Alternative of Li-ion

9.30 J. Hnát, M. Plevová, K. Bouzek

Development of Catalyst-coated Membrane for Alkaline Water Electrolysis

9.50 M. Carda, S. Janda, D. Budáč, M. Paidar, L. Novák, K. Bouzek

Optimizing Tape Casting and Sintering for Advanced Solid Oxide Cell Components

10.10 D. Budáč, V. Miloš, M. Carda, M. Paidar, K. Bouzek

Monte Carlo Model for Simulation of Porous Composite Ceramics

10.30 P. Janda, H. Tarábková

Surface “Ageing” – Hidden Process Deteriorating Interfacial Properties of Solid Electrodes

10.50 – 11.25 coffee break

Chair: Martin Paidar

11.25 G. Žerjav, A. Pintar

Platinum on TiO₂: How the Schottky Barrier Influences Photocatalytic Pathways

11.45 D. Dvoranová, M. Malček Šimunková, K. Lušpai, M. Férová, V. Slovák, V. Lazić

Indirect Techniques of EPR Spectroscopy as an Effective Tool in Detection of Transient Paramagnetic Species

12.05 A. Brüger, G. Fafilek, M. Neumann-Spallart

Phase Changes in WO₃ Films upon Heating and Cooling

12.25 X. Li, I. Venkrbcová, D. Lundin, M. Čada, Z. Hubička

Plasma Diagnostics for Reactive HiPIMS Process Control of Vanadium Oxides

12.45 S. Patakyová, M. Kubát, P. Džik

Hybrid Layers of Polymeric and Graphitic Carbon Nitride for Advanced Photoactive Coatings

13.00 Final remarks (Josef Krýsa)

13.15 Lunch