



5th workshop: Photocatalytic and Superhydrophilic Surfaces

CONFERENCE PLACE: CZECH ACADEMY OF SCIENCES, NÁRODNÍ 3, PRAGUE 1
Date: 4th – 6th December 2023

Programme

Monday, 4th December

12:00 Registration, coffee, tea

12:55 Opening (J. Krýsa, P. Kelly)

Session 1 Chair: J. Krýsa
Elaboration of Photocatalytic Films. Current Challenges and Selected Examples

13:00 IL-1 N. Keller
Semiconductor WO₃ Thin Films Deposited by Pulsed Reactive Magnetron Sputtering

13:30 OC-1 Z. Hubička, A. Písáříková, H. Krýsová, M. Čada, J. Olejníček
Novel Complex Bismuth Oxide-Based Photocatalysts and Their Potential for Environmental Applications

14:20 Break

Session 2 Chair: N. Keller

14:50 KL-2 H. Sophia, M. Sepúlveda, J. M. Macak
Recent Advancements in Anodic TiO₂ Nanotube Layers and Their Utilization for Photocatalytic Applications

15:20 OC-2 M. Ratova, G. West, P. Kelly
Functionalisation of Commercially Available Photocatalytic Titania Particulates by Magnetron Sputter Deposition

15:40 OC-3 A. Brüger, G. Fafilek, M. Neumann-Spallart
Investigation of Different WO₃ Modifications after Calcination of Films with Inorganic and Organic Precursors

16:00 Break

Flash Talks Chair: G. West

16:20 FC-1 A. Kapran, R. Hippler, H. Wullf, J. Olejníček, A. Písáříková, M. Čada, Z. Hubička
Deposition of Copper – Nickel Oxide Thin Films by Pulsed Hollow Cathode (PHC) Sputtering

FC-2 M. J. Mateos, A. Lao, M. P. Alcacera, B. Sánchez, S. Suárez
Photocatalytic Coatings with Superhydrophilic Properties for Indoor Air Treatment

		Photoinduced Processes on Zinc Oxide Photocatalysts: A Spectroscopic Study <i>Z. Dyrčíková, M. Férová, M. Malček Šimunková, K. Lušpaj, V. Slovák, D. Dvoranová</i>
FC-3	FC-4	Light Stability of Redox Dyes in Photocatalytic Oxygen Indicator <i>V. Dobiáš, D. Filipi, M. Veselý</i>

16:50 End

Tuesday, 5th December

	Session 3	Chair: Y. Paz
9:00	KL-3	Photo-Active Coatings for Surface Disinfection and Decontamination <i>J. A. Byrne</i>
9:30	OC-4	Polymeric Surfaces with Depolluting, Self-Cleaning and Antimicrobial Properties <i>M. J. Mateos, A. Lao, M. P. Alcacera, J. Valenzuela, M. Soria, B. Sánchez, S. Suárez</i>
9:50	OC-5	Antimicrobial Activity Assessment of Photocatalytic Surfaces: Proposals for a More Efficient Approach <i>P. Dzik, M. Veselý, M. Králová, J. Krýsa, H. Bartková</i>
10:10	OC-6	Photocatalysis in the Czech Republic and Certification Program of the Czech Association of Applied Photocatalysis <i>M. Zukalová, J. Procházka</i>
10:30		Break & Posters
	Session 4	Chair: M. Wark
11:00	KL-4	Pitfalls in Electrochemistry of Semiconductors: Lessons Learned from the Studies of TiO ₂ , SnO ₂ and ZnO <i>L. Kavan</i>
11:30	OC-7	Synthesis and Characterization of Copper Oxide Based Photoelectrocatalytic Active Materials <i>Š. Paušová, J. Štepánek, M. Neumann-Spallart, J. Krýsa</i>
11:50	OC-8	Photoelectrochemical Generation of H ₂ O ₂ Using Hematite (α -Fe ₂ O ₃) and Gas Diffusion Electrode (GDE) <i>T. Imrich, T. Nakata, T. Ohno, J. Krýsa</i>
12:10		Break & Lunch
	Session 5	Chair: J. A. Byrne
13:30	IL-2	Transient IR Measurements as a Tool for Understanding Photoactive Materials <i>Y. Paz</i>
14:00	KL-5	Formation of Bulk Polymeric Carbon Nitride and Their Thin Films for Photocatalytic Reduction Reactions <i>M. Weers, A. Simon, M.-F. Zastraub, M. Wark</i>
14:30	OC-9	Synthesis of g-C ₃ N ₄ /Ag ₃ PO ₄ Heterostructures and Their Indoor Air Purification Activity

		<i>C. Trapalis, N. Todorova, T. Giannakopoulou, N. Plakandonaki, M. Vagenas, I. Papailias, P. Dallas, S. Makka, E. Angelakis, P. Foka, O. Georgopoulou, N. Moustakas, D. Sgouras, G. Anyfantis, I. Arabatzis</i>
14:50	OC-10	TiO ₂ Nanoparticle Layers Modified with Lanthanide Oxides for Water Treatment <i>J. Rusek, Y. Paz, J. Krýsa</i>
15:30		Poster Session & Drinks
17:30		End
19:00		Conference Dinner – Café Louvre, Národní 22, Prague, cafelouvre.cz/en

Wednesday, 6th December

	Session 6	Chair: S. Pillai
9:00	IL-3	Solar Photocatalytic Applications for Water Treatment and Regeneration <i>I. Oller, A. Hernández, M.I. Polo-López, S. Nahim-Granados, S. Malato, A. Agüera</i>
9:30	OC-11	Continuous Flow Photocatalytic Reactor for Wastewater Treatment: Degree of Mineralization and Toxicity Assessment <i>O. Jamil, L. Matoh, U. Lavrenčič Štangar</i>
9:50	OC-12	Photocatalytic Degradation of Organic Pollutants Using Sunlight: From Laboratory to Outdoor Conditions <i>L. Belháčová, T. Supiňková, J. Šubrt, H. Golasovská</i>
10:10		Break
	Session 7	Chair: I. Oller
10:40	KL-6	New Insights into Photocatalysts for Anti-Microbial Applications <i>Suresh C. Pillai</i>
11:10	OC-13	The Effect of High Air Flow Velocity on Photocatalytic Efficiency in NO _x Degradation <i>E. Mikyskova, J. Rathousky</i>
11:30	OC-14	Photocatalytic Removal of VOC Using TiO ₂ Nanotube Layers: Mass Transfer Limitations <i>J. Rusek, V. Fíla, M. Baudys, J. Krýsa</i>
11:50		Closing Remarks
12:00		End

Shortcut	Contribution	Time (including 2 mins for questions)
IL	Invited Lecture	30 min
KL	Keynote Lecture	30 min
OC	Oral Communication	20 min
FC	Flash Oral Communication	7 min
P	Poster Communication	∞ min

Poster Communications

No.	Presenters	Title
FC/P-1	Anna Kapran	Deposition of Copper – Nickel Oxide Thin Films by Pulsed Hollow Cathode (PHC) Sputtering
FC/P-2	Maria José Mateos	Photocatalytic Coatings with Superhydrophilic Properties for Indoor Air Treatment
FC/P-3	Zuzana Dyrčíková	Photoinduced Processes on Zinc Oxide Photocatalysts: A Spectroscopic Study
FC/P-4	Vojtěch Dobiáš	Light Stability of Redox Dyes in Photocatalytic Oxygen Indicator
P-5	Martin Reli	Standardized Method for Evaluation of Commercial Photoactive Paints for Air Cleaning From NO _x
P-6	Michal Baudys	Photocatalytic Degradation of Gaseous Pollutants Using TiO ₂ Nanotubes
P-7	Martin Brada	Photoelectrochemical Degradation of Organic Pollutants on Tungsten Trioxide Photoanodes
P-8	Michael Neumann Spallart	p-Cu ₂ O Films Prepared by Electrodeposition – Role of Electron Acceptors in the Stability of Electrodes During Photoelectrochemical Operation
P-9	Jakub Štěpánek	Challenges of the Wet Chemical Deposition Synthesis of Pure-Phase CuFe ₂ O ₄ and CuFeO ₂ Thin Layers
P-10	Jana Volák	Synthesis of Bismuth Oxyhalides and Their Applications in Water Cleaning
P-11	Marie Le Pivert	Development of Nanocomposites Based on Metal Organic Frameworks for Hydrogen Generation by Photocatalysis
P-12	Jan Hodek	Inactivation of Influenza Virus on Photocatalytically Active Nanoparticle and Nanotubular TiO ₂ Surfaces
P-13	Eva Pližingrová	Solar Decontamination of Surface Water Using a Floating Photocatalyst with Synergistic Sorption Function
P-14	Guru Karthikeyan Thirunavukkarasua	Photo-Catalytic/Fenton Process-Based Elimination of Microplastics Using Iron-Modified Titanium Dioxide Aerogel Powders
P-15	Zdeněk Hubička	Deposition of Fe ₂ O ₃ :Sn Semiconducting Thin Films by Reactive Pulsed r-HIPIMS + ECWR Co-Sputtering from Fe and Sn Target
P-16	Glen West	Deposition of BiVO ₄ Thin Films by Reactive Magnetron Co-Sputtering for Efficient Visible Light Photoelectrochemical Water Splitting