

2nd circular
9th Czech-Austrian workshop:
New trends in photo and electro catalysis

CONFERENCE PLACE: HOTEL HAPPY STAR, HNANICE, CZECH REPUBLIC

(www.hotelhappystar.cz)

Date: 20th May - 23rd May 2019

Main Czech partner:

University of Chemistry and Technology, Prague - Prof. Dr. Ing. Josef Krýsa

Main Austrian partner:

Vienna University of Technology - Assoc. Prof. Dr. Guenter Fafilek

List of participants

Austria

Vienna University of Technology

Prof. Ulrika Diebold

Prof. Dominik Eder

Dr. Andreas Brueger

Dr. Martin Setvin

Dr. Alexey Cherevan

MSc. Sreejith Nandan

MSc. Jasmin Schubert

Ing. Jiří Pavelec



Ing. Michaela Plevová

Tomáš Imrich

Jakub Rusek

Anna Kloužková

J. Heyrovský Institute of Physical Chemistry AS CR

Prof. RNDr. Ladislav Kavan, DSc.

Ing. Pavel Janda, CSc.

Ing. Hana Krýsová, Ph.D.

RNDr. Markéta Zúkalová, Ph.D.



University of Salzburg

Prof. Dr. Oliver Diwald

MSc. Juan Miguel Jiménez Morales

Dipl.- Chem. Ellie Neige

Dipl.- Ing. Valerie Werner



Brno University of Technology

Prof. Ing. Michal Veselý, Ph.D.

Doc. Ing. Petr Dzik, Ph.D.

Ing. Tomáš Svoboda

Ing. Kateřina Sýkorová



Czech Republic

University of Chemistry and Technology

Prague

Prof. Dr. Ing. Karel Bouzek

Prof. Dr. Ing. Josef Krýsa

Doc. Ing. Martin Paidar

Dr. Michael Neumann - Spallart

Ing. Michal Baudys, Ph.D.

Ing. Šárka Paušová, Ph.D.

Ing. Michal Carda

Ing. Karel Denk

Ing. Martin Ďurovič

Ing. Adam Giurg

MSc. Lucia Pacileo



Technical University Ostrava

Prof. Ing. Kamila Kočí, Ph.D.

Prof. Ing. Petr Praus, Ph.D.

Ing. Miroslava Edelmannová

Ing. Aneta Smýkalová



Other countries

Slovak University of Technology in Bratislava, Slovakia

Prof. Ing. Vlasta Brezová, DrSc.

Doc. Ing. Dana Dvoranová, Ph.D.

Ing. Zuzana Barbieriková, Ph.D.



Programme

Monday, 20th May

11.00 – 13.00 arrival

13.00 – 13.30 registration of participants

13.30 Welcome talk (Josef Krýsa)

Chair: Josef Krýsa

13.40 Ulrike Diebold

BRIDGING ULTRAHIGH VACUUM SURFACE SCIENCE AND ELECTROCHEMISTRY: A FIRST STEP

14.10 Vlasta Brezová, D. Dvoranová, Z. Barbieriková, M. Mazúr

CAN C₃N₄ FULFILL OUR DREAM OF AN EFFICIENT VISIBLE-LIGHT ACTIVE PHOTOCATALYST?

14.40 Zuzana Barbieriková, T. Hajdu, V. Brezová, G. Žerjav, P. Djinović, A. Pintar

PROMISING TiO₂-Bi₂O₃ COMPOSITE PHOTOCATALYST – EPR STUDY

15.00 Ellie Neige, Thomas Schwab, Gregor Zickler, Oliver Diwald

TiO₂ AND BaTiO₃ NANOPARTICLES: GAS PHASE FUNCTIONALIZATION AND SEPARATION OF PHOTOGENERATED CHARGES

15.20 – 15.45 coffee break

Chair: Ulrike Diebold

15.45 Ladislav Kavan

PEROVSKITE PHOTOVOLTAICS: INPUTS FROM ELECTROCHEMISTRY

16.15 Martin Setvin, I. Sokolovic, Z. Wang, M. Reticioli, M. Schmid, C. Franchini, U. Diebold

SURFACE STRUCTURE AND REACTIVITY OF CUBIC PEROVSKITES

16.35 Pavel Janda, H. Tarábková, J. Klíma

GASEOUS NANOBUBBLE ASSEMBLIES ON WATER-IMMERSED SOLID SURFACES

17.00 Hana Krýsová, J. Krýsa, L. Kavan

TiO₂ THIN FILMS WITH BLOCKING FUNCTION FOR APPLICATIONS IN SOLAR CELLS

17.25 End of the session

19.00 Common dinner

Tuesday, 21st May

Chair: Michal Veselý

9.00 Dana Dvoranová, V. Brezová, Z. Barbieriková, D. M. Tobaldi, M. Saeli
EPR STUDY OF PHOTOINDUCED PROCESSES OF NOBLE-METAL DECORATED
TITANIUM DIOXIDE PHOTOCATALYSTS

9.25 Juan Miguel Jiménez Morales, T. Berger
HYDROGEN DERIVED ELECTRON CENTERS IN TiO₂: REACTIVITY AND IMPACT
ON PHOTOELECTRODE PERFORMANCE

9.45 Jakub Rusek, Š. Paušová, J. Krýsa
TiO₂ NANOTUBULAR PHOTOELECTRODES: PREPARATION AND PROPERTIES

10.00 Alexey Cherevan, Dominik Eder et al.
EXPLORING NEW MATERIAL COMBINATIONS FOR PHOTOCATALYTIC WATER
SPLITTING

10.20 – 10.50 coffee break

Chair: Vlasta Brezová

10.50 Michal Baudys, J. Krýsa
PHOTOCATALYTIC REMOVAL OF NO_x ON TiO₂/ACTIVE CARBON COMPOSITE
PHOTOCATALYST

11.10 Andreas Brüger, G. Fafilek,
INFLUENCE OF VOLATILISATION ON THE OXIDATIVE TREATMENT OF
CYANIDE WASTE ILLUSTRATED BY PHOTOELECTROCATALYTIC
DEGRADATION USING TiO₂

11.30 Miroslava Edelmannová, L. Dubnová, M. Zvolská, I. Troppová, L. Matějová, M. Reli,
H. Drobná, P. Kuśtrowskic, L. Čapek, K. Kočí
N-La/TiO₂ PHOTOCATALYSTS FOR PHOTOCATALYTIC DECOMPOSITION
OF METHANOL – WATER SOLUTION

11.50 Lucia Pacileo, Š. Paušová, J. Krýsa
COMPOSITE CATALYSTS BASED ON TiO₂ FOR WATER TREATMENT

12.05 Adam Giurg, M. Paidar
STUDY OF DEGRADATION MECHANISMS IN THE CAPACITIVE DEIONIZATION
TECHNOLOGY

12.25 End of the session

13.00 Lunch

14.00 – 18.00 Individual discussions

19.30 Common dinner

21.00 Informal discussions of teachers, young researchers and PhD students about the
aspects and experiences from Czech-Austrian exchange programme

Wednesday, 22nd May

Chair: Karel Bouzek

9.00 Markéta Zukalová, Jan Procházka

MORPHOLOGY OPTIMIZATION OF $\text{LiNi}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3}\text{O}_2$ CATHODE MATERIAL FOR 48 V 3D Li-ACCUMULATOR

9.25 Michal Carda, D. Budáč, M. Paidar, K. Bouzek

OXYGEN ELECTRODE DEGRADATION AND REACTIONS KINETIC PARAMETERS IN REVERSIBLE SOLID OXIDE CELL

9.45 Aneta Smýkalová, Jan Storch, Jaroslav Žádný, Petr Praus

PREPARATION OF SUPHUR DOPED GRAPHITIC CARBON NITRIDE USING DIFFERENT TECHNIQUES

10.05 Anna Kloužková, M. Baudys, J. Krýsa

PREPARATION AND PROPERTIES OF PHOTOCATALYTICALLY ACTIVE TiO_2 - SiO_2 COATINGS

10.20 – 11.50 coffee break

Chair: Michael Neumann-Spallart

10.50 Šárka Paušová, M. Neumann-Spallart, J. Krýsa

Mo-BiVO_4 PHOTOANODES MODIFIED BY Co-Pi FOR PHOTOELECTROCHEMICAL APPLICATION

11.10 Tomáš Imrich, M. Neumann-Spallart, J. Krýsa

Fe_2O_3 BASED SEMICONDUCTOR PHOTOANODES FOR LIGHT ASSISTED WATER ELECTROLYSIS

11.25 Valerie Werner, S. Pokrant

SCALABLE PHOTOANODES FOR PHOTOELECTROCHEMICAL WATER-SPLITTING

11.45 Michaela Plevová, J. Hnát, J. Žitka, M. Paidar, K. Bouzek

CATALYST COATED MEMBRANE - NEW APPROACH IN THE ALKALINE WATER ELECTROLYSIS PROCESS

12.05 Martin Ďurovič, J. Hnát, K. Bouzek

NiCoP_x CATALYST FOR ELECTROCHEMICAL WATER SPLITTING: ACTIVITY AND STABILITY UNDER THE ALKALINE WATER ELECTROLYSIS CONDITIONS

12.25 Karel Denk, A. Giurg, M. Paidar

ELECTROCHEMICAL REMOVAL OF ORGANIC POLLUTANTS FROM PROCESS WATER

12.45 End of the session

13.00 Lunch

Chair: Ladislav Kavan

14.30 Key note talk I

T. Berger, N. Siedl, M. Niedermaier, T. Schwab, Oliver Diwald

LIGHT INDUCED CHARGE SEPARATION AND COMPETITIVE DEACTIVATION
PROCESSES IN METAL OXIDE NANOSTRUCTURES

15.15 – 15.30 coffee break

15.30 Key note talk II

Karel Bouzek, R. Kodým, M. Drakselová, M. Paidar

FLOW - FIELD GEOMETRY AND ITS IMPACT ON THE PEM FUEL CELL
PERFORMANCE

16.15 Final remarks

18.30 Closing dinner

Thursday, 23rd May

9.00 – 10.30 the hotel check out, departures