

*The 5<sup>th</sup> International Conference on*  
**New Photocatalytic Materials for  
Environment, Energy and Sustainability**  
**(NPM-5)**

*The 6<sup>th</sup> International Conference on*  
**Photocatalytic and Advanced Oxidation  
Technologies for the Treatment of Water,  
Air, Soil and Surfaces**  
**(PAOT-6)**

**Final Program**

**Virtual Conference  
May 24-27, 2021**

## **Honorary Conference Chairman**

**Professor Imre Dékány**

## **International Advisory Committee**

**Professor Biljana Abramović**, University of Novi Sad, Serbia

**Professor Lucian Baia**, Babes-Bolyai University, Romania

**Professor Zhong Chen**, Nanyang Technological University, Singapore

**Professor Juan Carlos Colmenares** Institute of Physical Chemistry, Polish Academy of Sciences, Poland

**Professor Pegie Cool**, Antwerp University, Belgium

**Professor Wenxin Dai**, Fuzhou University, P. R. China

**Professor Virginia Danciu**, Babes-Bolyai University, Romania

**Dr. Landelihle Nsikayezwe Dlamini**, University of Johannesburg, South Africa

**Professor Anca Duta**, Universitatea Transilvania Brasov, Romania

**Professor Saim Emin**, University of Nova Gorica, Slovenia

**Dr. Shiyong Fan**, Dalian University of Technology, P.R. China

**Dr. Chantal Guillard**, University of Lyon, IRCELYON, France

**Professor Otto Horváth**, University of Pannonia, Hungary

**Professor Laszlo Janovak**, Szeged University, Hungary

**Dr. Pap József Sándor**, Centre for Energy Research, Hungarian Academy of Sciences, Hungary

**Professor Ladislav Kavan**, J. Heyrovsky Institute of Physical Chemistry, Czech Republic

**Professor János Kiss**, University of Szeged, Hungary

**Professor Xinyong Li**, Dalian University of Technology, P.R. China

**Professor Yao-Yong Lin**, National Chung Hsing University, Taiwan

**Professor Baojun Liu**, Guizhou University, P.R. China

**Professor Gongxuan Lu**, Lanzhou Institute of Chemical Physics, Chinese Academy of Science, P.R. China

**Professor Marco Lucas**, UTAD – Universidade de Trás-os-Montes e Alto Douro, Portugal

**Professor Dan Meyerstein**, Ariel University, Ariel Israel/Ben-Gurion University of the Negev, Beer-Sheva, Israel

**Professor Antoni W. Morawski**, West Pomeranian University of Technology, Poland

**Professor Nataša Novak Tušar**, University of Nova Gorica, Slovenia

**Professor Bunsho Ohtani**, Hokkaido University, Japan

**Professor David Ollis**, North Carolina State University, USA

**Professor Thomas Oppenländer**, Hochschule Furtwangen University, Germany

**Professor Yaron Paz**, Technion, Israel

**Professor Pierre Pichat**, CNRS/Ecole Centrale de Lyon (STMS) Ecully CEDEX, France

**Professor Tomasz Puzyn**, University of Gdansk, Poland

**Professor Xie Quan**, Dalian University of Technology, P.R. China

**Professor Joseph Rabani**, Hebrew University of Jerusalem, Israel

**Professor Diana Sannino**, University of Salerno, Italy

**Dr. Silvia Suárez Gil**, fotoair – Ciemat, Spain

**Professor Imre Miklos Szilagy**, Budapest University of Technology and Economics, Hungary

**Dr. Christos Tsakiroglou**, Foundation for Research and Technology – Hellas, Greece

**Dr. Gábor Veréb**, University of Szeged, Hungary

**Dr. László Wojnárovits**, Centre for Energy Research, Hungarian Academy of Sciences, Hungary

**Professor Ying Yu**, Central China Normal University, P. R. China

## **Executive Committee**

**Professor Tünde Alapi (Co-Chair)**, Szeged University, Hungary

**Dr. Hussain Al-Ekabi, Lead Organizer**, Redox Technologies, Inc., The University of Western Ontario Research Park, London, Ontario, Canada

**Professor Zsolt Pap (Co-Chair)**, Babes-Bolyai University, Romania

**Professor Klara Hernadi (Co-Chair)**, Szeged University, Hungary

**Professor Zoltan Konya (Co-Chair), Szeged University, Hungary**

### **Important Notes:**

- (1) The time in this program is the Central European Time (CET).
- (2) IL stands for invited lecture (25 min).
- (3) ST stands for short talk (15 min).
- (4) PP stands for poster presentation (10 min).
- (5) All Presentation are Power Point.

## **Monday, May 24, 2021**

8:30 – 9:00      **Instructions for Zoom Online Conference**

9:00 – 9:15      **Welcoming remarks by the conference chairs**

### **Session A: Photocatalysis – I**

9:15 – 9:35      **Viability of TiO<sub>2</sub>-Based Self-Cleaning Glass: What Can be  
IL                      Deduced from Prolonged Field Experiments and Life Cycle  
                                 Assessment?**  
**Pierre Pichat**  
"Photocatalyse et Environnement", CNRS/Ecole Centrale de Lyon (STMS)  
Ecully CEDEX, France

9:35 – 9:55      **Functional Surfaces with Designed Wetting and Photocatalytic  
IL                      Properties**  
**László Janovák, Ágota Deák, László Mérai, Mohamed M. Abdelghafour,  
Imre Dékány**  
University of Szeged, Interdisciplinary Excellence Centre, Department of  
Physical Chemistry and Materials Science, Faculty of Science and  
Informatics, Szeged, Hungary

9:55 – 10:10      **Self-Cleaning Composite Thin Films Based on Metallic Oxides  
ST                      and Reduced Graphene Oxide for PV Glazing**  
**Maria Covei, Cristina Bogatu, Dana Perniu, Anca Duta, Ion Visa**  
R&D Center Renewable Energy System and Recycling, Transilvania  
University of Brasov, Brasov, Romania

10:10 – 10:25  
ST **Application of Photocatalytic Filler Materials for the Preparation of Functional Composites with Designed Properties**  
**László Mérai<sup>1</sup>, Ágota Deák<sup>1</sup>, Mohamed M. Abdelghafour<sup>1</sup>, Dániel Sebők<sup>2</sup>, Imre Dékány<sup>2</sup>, László Janovák<sup>1</sup>**  
<sup>1</sup> University of Szeged, Interdisciplinary Excellence Centre, Department of Physical Chemistry and Materials Science, Szeged, Hungary  
<sup>2</sup> University of Szeged, Interdisciplinary Excellence Centre, Department of Applied and Environmental Chemistry, Szeged, Hungary

10:25 – 10:45 **Coffee Break**

## **Session B: Photocatalysis – II**

10:45 – 11:05  
IL **TiO<sub>2</sub>/Silane Nanomaterials with Enhanced Photocatalytic Properties**  
**A.W. Morawski, A. Wanag, A. Sienkiewicz, P. Rokicka-Konieczna, A. Babyszko, E. Kusiak-Nejman**  
West Pomeranian University of Technology, Szczecin, Poland

11:05 – 11:25  
IL **Influence of Carbon Nature on the Photocatalytic Properties of Carbon/TiO<sub>2</sub> Hybrids for Elimination of Volatile Organic Compounds in Gas Phase**  
**I. Jansson<sup>1</sup>, J. García-García<sup>2</sup>, B. Sánchez<sup>1</sup>, S. Suárez<sup>1</sup>**  
<sup>1</sup> CIEMAT, Renewable Energy Division, FOTOAIR: Group of Analysis and Photocatalytic Treatment of Pollutant in Air, Madrid, Spain  
<sup>2</sup> ICTS-CNME, Universidad Complutense de Madrid, Madrid, Spain

11:25 – 11:45  
IL **Chemoinformatics Methods for Supporting Safe-By-Design Strategies**  
**Alicja Mikołajczyk, Karolina Jagiello, Agnieszka Gajewicz-Skrętna, Tomasz Puzyn**  
Faculty of Chemistry, University of Gdańsk, Gdańsk, Poland

11:45 – 12:05  
IL **Black Phosphorous Composite Nanomaterials: Photocatalytic Degradation of Organic Pollutants in Water**  
**Langelihle Nsikayezwe Dlamini**  
University of Johannesburg, Johannesburg, South Africa

12:05 – 12:20  
ST **TiO<sub>2</sub>/Chitosan-Lignin Photocatalyst for the Selective Oxidation of 5-Hydroxymethyl-2-furaldehyde**  
**Ayesha Khan,<sup>1</sup> Michael Goepel,<sup>2</sup> Juan Carlos Colmenares,<sup>1</sup> Roger Gläser<sup>2</sup>**

<sup>1</sup>Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland

<sup>2</sup> Institute of Chemical Technology, Leipzig University, Leipzig, Germany

12:20 – 13:20 **Lunch**

## **Session C: Photocatalysis – III**

13:20 – 13:40 **Visible-light-active Nitrogen-doped Titanium Dioxide: Preparation and Photocatalytic Application**  
IL

**Máté Fonyó<sup>1</sup>, Ottó Horváth<sup>2</sup>, Erzsébet Szabó-Bárdos<sup>1</sup>, Abdul Wafi<sup>1</sup>, Éva Kristóf-Makó<sup>2</sup>, Miklós Jakob<sup>2</sup>, Balázs Zsirka<sup>3</sup>, Mihály Pósfai<sup>4</sup>**

<sup>1</sup>Department of General and Inorganic Chemistry, Center for Natural Sciences

<sup>2</sup>Department of Materials Engineering, Research Center for Engineering Sciences

<sup>3</sup>Research Center for Biochemical, Environmental and Chemical Engineering

<sup>4</sup>Nanolab, Research Institute of Biomolecular and Chemical Engineering.

University of Pannonia, H-8210 Veszprém, POB. 1158, Hungary

13:40 – 14:00 **Hollow-Structured Semiconductor Oxides for Photocatalytic Environmental Applications**  
IL

**Klara Hernadi<sup>1</sup>, Tamás Gyulavári<sup>1</sup>, Balázs Réti<sup>1</sup>, László Péter Bakos<sup>5</sup>, Gábor Veréb<sup>2</sup>, Zsolt Pap<sup>3</sup>, Zoltán Erdélyi<sup>4</sup>, Imre Miklós Szilágyi<sup>5</sup>**

<sup>1</sup> Department of Applied and Environmental Chemistry, University of Szeged, Szeged, Hungary

<sup>2</sup> Department of Process Engineering, University of Szeged, Hungary

<sup>3</sup> Institute of Environmental Science and Technology, University of Szeged, Szeged, Hungary

<sup>4</sup> Department of Solid State Physics, University of Debrecen, Debrecen, Hungary

<sup>5</sup> Department of Inorganic and Analytical Chemistry, Budapest, Hungary

14:00 – 14:20 **Vis-Active Photocatalytic Composites for Advanced Wastewater Treatment**  
IL

**Tismanar Ioana, Bogatu Cristina, Covei Maria, Duta Anca\***

Transilvania University of Brasov, Brasov, Romania

14:20 – 14:40 **BiOI/BiOCl Composite Photocatalysts – Synthesis, Characterization, and Application for the Elimination of Organic Pollutants using Various LED Light Sources**  
IL

**Tünde Alapi<sup>1</sup>, Máté Náfrádi<sup>1</sup>, Tamás Hlogyik<sup>1</sup>, Klára Hernádi<sup>2</sup>**

<sup>1</sup>Department of Inorganic and Analytical Chemistry, University of Szeged, Hungary

<sup>2</sup>Department of Environmental and Applied Chemistry, University of Szeged, Hungary

**Tuesday, May 25, 2020**

**Session D: Photocatalysis IV**

- 8:00 – 8:20  
IL  
**Immobilized Zinc Oxide (ZnO) Photocatalysts, and Their Use in Continuous-flow Photoreactors for Wastewater Treatment**  
**Michalis V. Karavasilis<sup>1,2</sup>, Maria A. Theodoropoulou<sup>1</sup>, and Christos D. Tsakiroglou<sup>1</sup>**  
<sup>1</sup> Foundation for Research and Technology Hellas, Institute of Chemical Engineering Sciences, Patras, Greece  
<sup>2</sup> University of Patras, Department of Chemistry, Patras, Greece
- 8:20 – 8:40  
IL  
**One Step Mechanochemical Synthesis of ZnO Nanoparticles as Perovskite Substrate**  
**G. Kozma<sup>1</sup>, K. Lipták<sup>1</sup>, M. Náfrádi<sup>2</sup>, T. Alapi<sup>2</sup>, Á. Kukovecz<sup>1</sup>, Z. Kónya<sup>1,3</sup>**  
<sup>1</sup> University of Szeged, Department of Applied and Environmental Chemistry, Szeged, Hungary  
<sup>2</sup> University of Szeged, Department of Inorganic and Analytical Chemistry, Szeged, Hungary  
<sup>3</sup> MTA-SZTE Reaction Kinetics and Surface Chemistry Research Group, Szeged, Hungary
- 8:40 – 8:55  
ST  
**Nanoengineering of Optocatalytic Microreactor with Immobilized Catalysts for Selective Oxidation of Aromatic Alcohols**  
**S. R. Pradhan\*, J. C. Colmenares\***  
Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland

**Session E: Photocatalysis – V**

- 8:55 – 9:15  
IL  
**New Challenges of the Old Titania Photocatalyst**  
**Zsolt Pap,<sup>1</sup> Virginia Danciu,<sup>1</sup> Monica Baia,<sup>1</sup> Klara Hernadi,<sup>2</sup> Lucian Baia<sup>1</sup>**  
<sup>1</sup> “Babeş-Bolyai” University, Cluj-Napoca, Romania  
<sup>2</sup> Szeged University, Szeged, Hungary
- 9:15 – 9:35  
IL  
**Natural Photocatalyst: Real Alternatives to the Synthesized Ones?**  
**Kata Saszet<sup>1,2</sup>, Zsolt Czekes<sup>2,3</sup>, Lucian Baia<sup>1,2,4</sup>, Enikő-Eszter Almási<sup>5,6</sup>, Ádám Rácz<sup>7</sup>, Gábor Rákhely<sup>6,8</sup>, Klára Hernádi<sup>9</sup>, Zsolt Pap<sup>2,4,6</sup>**  
<sup>1</sup> Faculty of Physics, Babeş–Bolyai University, Cluj–Napoca, Romania

<sup>2</sup> Nanostructured Materials and Bio-Nano-Interfaces Center, Institute for Interdisciplinary Research on Bio-Nano-Sciences, Babeş – Bolyai University, Cluj-Napoca, Romania

<sup>3</sup> Faculty of Biology and Geology, Babeş–Bolyai University, Cluj-Napoca, Romania

<sup>4</sup> Advanced Materials and Applied Technologies Laboratory, Institute of Research-Development-Innovation in Applied Natural Sciences, Babes-Bolyai University, Cluj-Napoca, Romania

<sup>5</sup> Vulcano Research Group, Department of Mineralogy, Geochemistry and Petrology, University of Szeged, Szeged, Hungary

<sup>6</sup> Institute of Environmental Science and Technology, University of Szeged, Szeged, Hungary

<sup>7</sup> Institute of Raw Material Preparation and Environmental Processing, University of Miskolc, Miskolc, Hungary

<sup>8</sup> Department of Biotechnology, University of Szeged, Szeged, Hungary

<sup>9</sup> Department of Applied and Environmental Chemistry, University of Szeged, Szeged, Hungary

9:35 – 9:55  
IL

### **Nanophotocatalysts for Green Synthesis and Environmental Application**

**Diana Sannino<sup>1</sup>, Antonietta Mancuso<sup>1</sup>, Olga Sacco<sup>2</sup>, Vincenzo Vaiano<sup>1</sup>**

University of Salerno, Department of Industrial Engineering, Italy

<sup>2</sup> University of Salerno, Department of Chemistry and Biology, Italy

9:55 – 10:10  
ST

### **Photocatalytic Properties of TiO<sub>2</sub> Layers on Aluminium Substrates: Effect of Acid Pretreatment**

**J. Paccha<sup>1</sup>, S. Suárez<sup>1</sup>, S. Fernández<sup>2</sup>, L. Gudiño<sup>1</sup>, A. Soubrié<sup>3</sup>, M. B. Gómez-Mancebo<sup>4</sup>, F. J. Sánchez<sup>5</sup>, J. Gandia<sup>2</sup>, B. Sánchez<sup>1</sup>**

<sup>1</sup>Fotoair Unit, Energy Department, CIEMAT, Madrid, Spain

<sup>2</sup> Photovoltaic Solar Energy Unit, Energy Department, CIEMAT, Spain

<sup>3</sup> ICTS-CNME, Universidad Complutense de Madrid, Av. Complutense s/n

<sup>4</sup> Spectroscopy Unit, Technology Department, CIEMAT, Spain

<sup>5</sup> Fusion Technology Division, National Fusion Laboratory, CIEMAT, Spain

10:10 – 10:45 **Coffee Break**

## **Session F: Photocatalysis – VI**

10:30 – 10:50  
IL

### **The Role of Subnanosized Gold Clusters in Photocatalytic CH<sub>4</sub> Transformation and CO<sub>2</sub> Hydrogenation on Titania and Titanate Nanotubes**

**János Kiss**

Department of Applied and Environmental Chemistry, University of Szeged, Hungary



10:50 – 11:10  
IL  
**Tailoring of Photocatalysis: Combining Controlled-Size Nanoparticles and Mesoporous Oxide Nanostructures Towards High Photocatalytic Activity and Selectivity**  
**Zoltán Kónya**  
University of Szeged, Interdisciplinary Excellence Centre, Szeged, Hungary

11:10 – 11:30  
IL  
**Nanostructured Photocatalysts Prepared by Atomic Layer Deposition**  
**Imre Miklós Szilágyi<sup>1</sup>, László Bakos<sup>1</sup>, Dániel Karajz<sup>1</sup>, Vincent Otieno Odhiambo<sup>1</sup>, Krisztina László<sup>2</sup>, Zoltán Hórvölgyi<sup>2</sup>, Klára Hernádi<sup>3</sup>, Zoltán Erdélyi<sup>4</sup>, Bence Parditka<sup>4</sup>**  
<sup>1</sup> Department of Inorganic and Analytical Chemistry, Budapest University of Technology and Economics, Hungary  
<sup>2</sup> Department of Physical Chemistry and Materials Science, Budapest University of Technology and Economics, Hungary  
<sup>3</sup> Department of Applied and Environmental Chemistry, University of Szeged, Hungary  
<sup>4</sup> Department of Solid State Physics, University of Debrecen, Hungary

## **Session G: Advanced Oxidation Processes – I**

11:30 – 11:50  
IL  
**Characteristics, Development and Application of Excimer Flow-Through Photoreactors (FTPs)**  
**Thomas Oppenländer**  
Hochschule Furtwangen University (HFU), Villingen-Schwenningen, Germany

11:50 – 12:10  
IL  
**Application of Various Advanced Oxidation Processes for Elimination of Sulfonamides from Aqueous Solution: Reaction Mechanism, Efficiency, Toxicity and Economic Considerations**  
**Tünde Alapi, Luca Farkas, Máté Náfrádi**  
University of Szeged, Szeged, Hungary

12:10 – 12:30  
IL  
**Reactive Radicals in Advanced Oxidation Processes: Rate Constants, Reduction Potentials, Mechanisms**  
**L. Wojnárovits**  
Centre for Energy Research, Budapest, Hungary

12:30 – 12:50  
IL  
**On the Mechanisms of Formation of M<sup>0</sup>-nanoparticles via the Reduction of M<sup>n</sup>L<sub>m</sub> Complexes**  
**Alina Sermiagin<sup>1</sup>, Totan Mondal<sup>1</sup>, Dan Meyerstein<sup>1,2</sup>, Ronen Bar-Ziv<sup>3</sup>, Haya Kornweitz<sup>1</sup>, Tomer Zidki<sup>1</sup>**  
<sup>1</sup> Department of Chemical Sciences, Ariel University, Ariel Israel

<sup>2</sup> Chemistry Department, Ben-Gurion University of the Negev, Beer-Sheva, Israel

<sup>3</sup> Department of Chemistry, Nuclear Research Centre Negev, Beer-Sheva, Israel

12:50 – 13:50 **Lunch**

## **Session H: Poster Presentations – I**

13:50 – 14:00 **Preparation and Investigation of Sulfur and Nitrogen Co-Doped TiO<sub>2</sub>**  
PP

**Larissa Albuquerque, Ottó Horváth, Erzsébet Szabó-Bárdos**  
University of Pannonia, Veszprém, Hungary

14:00 – 14:10 **Photocatalytic Degradation of Organic Pollutants**  
PP

**Gábor Kocsis, Ottó Horváth, Erzsébet Szabó-Bárdos**  
University of Pannonia, Veszprém, Hungary

14:10 – 14:20 **Mechanochemical Synthesized TiO<sub>2</sub> Nanostructures for Building Perovskite Structures**  
PP

**G. Kozma<sup>1</sup>, Á. Kukovecz<sup>1</sup>, Z. Kónya<sup>1,2</sup>**

<sup>1</sup> University of Szeged, Department of Applied and Environmental Chemistry, Szeged, Hungary

<sup>2</sup> MTA-SZTE Reaction Kinetics and Surface Chemistry Research Group, Szeged, Hungary

## **Wednesday, May 26, 2021**

## **Session I: Photocatalysis – VII**

8:00 – 8:20 **Design, Preparation and Characterization of Solid Photocatalyst Materials Based on Energy-Resolved Distribution of Electron Traps**  
IL

**Bunsho Ohtani**  
Institute of Catalysis, Hokkaido University, Japan

8:20 – 8:40 **Photocatalytic Degradation of Ethylene under UV-LED Light using Mesh-supported TiO<sub>2</sub> Film**  
IL

**Zhong Chen<sup>1</sup> and Bang Ji<sup>1,2</sup>**

<sup>1</sup> School of Materials Science and Engineering, Nanyang Technological University, Singapore

<sup>2</sup> College of Engineering, South China Agricultural University, Guangzhou, P.R. China

8:40 – 9:00  
IL  
**Construction of Novel Spinel Based Photocatalyst for Highly Efficient CO<sub>2</sub> Conversion**  
**Shiyang Fan**  
State Key Laboratory of Fine Chemicals, Key Laboratory of Industrial Ecology and Environmental Engineering (MOE), School of Environmental Science and Technology, Dalian University of Technology, Dalian, P.R. China

9:00 – 9:20  
IL  
**CO<sub>2</sub> Conversion to Ethylene by Copper Oxide Derived Cu Electrode with Solar Energy**  
**Wei Zhang and Ying Yu**  
Central China Normal University, P.R. China

## **Session J: Photocatalysis – VIII**

9:20 – 19:40  
IL  
**Engineering of Semiconductor Interfaces in Perovskite Photovoltaics**  
**Ladislav Kavan**  
J. Heyrovsky Institute of Physical Chemistry, Prague, Czech Republic

9:40 – 10:00  
IL  
**Preparation of Perovskite Structure and Metal-oxide Nanomaterials via Mechanochemical Process**  
**G. Kozma<sup>1</sup>, Á. Kukovecz<sup>1</sup>, Z. Kónya<sup>1,2</sup>**  
<sup>1</sup>University of Szeged, Department of Applied and Environmental Chemistry, Szeged, Hungary  
<sup>2</sup>MTA-SZTE Reaction Kinetics and Surface Chemistry Research Group, Szeged, Hungary

10:00 – 10:20  
**Break**

10:20 – 10:40  
IL  
**Valorization of Ethanol into 1,1 Diethoxy-Ethane by Photocatalysis in Presence of TiO<sub>2</sub>-Based Photocatalyst**  
**Marwa Hamandi, Lynn M. Betts, Melissa Pandal, Frederic Dappozze, Chantal Guillard**  
Univ Lyon, Universite Claude Bernard Lyon1, CNRS, IRCELYON, Villeurbanne, France

10:40 – 11:00  
IL  
**How First Row Transition Metal Complexes Can Be Utilized to Improve Water Oxidation in (Photo)Electrocatalytic Hybrid Systems?**  
**József S. Pap<sup>1</sup>, Tímea Benkó<sup>1</sup>, Krisztina Frey<sup>1</sup>, Sahir M. Al-Zuraiji<sup>1,2</sup>, Márta M. Móricz<sup>1</sup>, Shaohua Shen<sup>3</sup>**

<sup>1</sup> Surface Chemistry and Catalysis Department, Centre for Energy Research, Budapest, Hungary

<sup>2</sup> Doctoral School on Materials Sciences and Technologies, Óbuda University, Budapest, Hungary

<sup>3</sup> International Research Center for Renewable Energy, Xi'an Jiaotong University, Xian, P.R. China

11:00 – 11:20  
IL

**The Role of Ultrasound in Selective Oxidation Photocatalysis**  
**Juan Carlos Colmenares, D.A. Giannakoudakis, A. Qayyum, D. Łomot**

Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland

11:20 – 11:35  
ST

**Co-Precipitation Method Optimisation for the Synthesis of Superparamagnetic Copper ferrite Nanoparticles for Water Treatment**

**Ngonidzashe Masunga, Bhekie B. Mamba, Kebede K. Kefeni**

University of South Africa, Johannesburg, South Africa

11:35 – 12:35     **Lunch**

**Session K: Advanced Oxidation Processes - II/ Ozone and Membrane Technology**

12:35 – 12:55  
IL

**Utilization of Photocatalytic Nanomaterials for the Development of Advanced Membrane Surfaces Used for the Purification of Oil Emulsions**

**Gábor Veréb<sup>1,\*</sup>, Áron Ágoston<sup>1</sup>, Laura Fekete<sup>1</sup>, Erika Nascimben Santos<sup>1</sup>, Ákos Fazekas<sup>1</sup>, Zoltán Jákó<sup>1</sup>, Szabolcs Kertész<sup>1</sup>, Sándor Beszédes<sup>1</sup>, Cecilia Hodúr<sup>1</sup>, Zsuzsanna László<sup>1</sup>, Gangasalam Arthanareeswaran<sup>2</sup>, Tamás Gyulavári<sup>3</sup>, Gábor Kovács<sup>3</sup>, Zsolt Pap<sup>3</sup>, Klára Hernádi<sup>3</sup>,**

<sup>1</sup> Institute of Process Engineering, Faculty of Engineering, University of Szeged, HU-6725, Moszkvai Blvd. 9., Szeged, Hungary

<sup>2</sup> Membrane Research Laboratory, Department of Chemical Engineering, National Institute of Technology, Tiruchirappalli-620015, Tamilnadu, India

<sup>3</sup> Department of Applied and Environmental Chemistry, Institute of Chemistry, University of Szeged, H-6720, Rerrich Béla sq. 1, Szeged, Hungary

12:55 – 13:15  
IL

**Photocatalytic Membranes: What Does the Future Hold in Integrated Photocatalysis/Membrane Technology Applications?**

**Alex T. Kuvarega and Bhekie B. Mamba**  
University of South Africa, Johannesburg, South Africa

13:15 – 13:35  
IL **Effect of Advanced Oxidation Pretreatments on Membrane Filtration of Protein Containing Waste Waters**  
**Zsuzsanna László, Mihály Zakar, Ákos Fazekas, Elias Jigar Sisey, Gábor Veréb**  
University of Szeged, Szeged, Hungary

**Thursday, May 27, 2021**

**Session L: Photocatalysis – IX**

8:00 – 8:20  
IL **Novel 3D In<sub>2</sub>S<sub>3</sub>/In<sub>2</sub>O<sub>3</sub> Heterostructures for Efficient Photocatalytic Application**  
**Xinyong Li**  
State Key Laboratory of Fine Chemicals, Key Laboratory of Industrial Ecology and Environmental Engineering (MOE), School of Environmental Science and Technology, Dalian University of Technology, Dalian 116024, P.R. China

8:20 – 8:40  
IL **The Role of Alcoholic Sacrificial Agents in Photo-catalysis: Is it Always Trivial?**  
**Krishnamoorthy Sathiyam,<sup>1</sup> Ronen Bar-Ziv,<sup>2</sup> Dan Meyerstein,<sup>1,3</sup> and Tomer Zidki<sup>1\*</sup>**  
<sup>1</sup> Department of Chemical Sciences, The Center for Radical Reactions and the Schlesinger Family Center for Compact Accelerators, Radiation Sources and Applications, Ariel University, Ariel, Israel  
<sup>2</sup> Department of Chemistry, Nuclear Research Centre Negev, Beer-Sheva, Israel  
<sup>3</sup> Chemistry Department, Ben-Gurion University, Beer-Sheva, Israel

8:40 – 9:00  
IL **Exploring the Mechanisms of Nitrogen Adsorption and Activation on the 2H/1T Mixed-phase Ultrathin Mo<sub>1-x</sub>W<sub>x</sub>S<sub>2</sub> Nanosheets for Boosting Nitrogen Photosynthesis**  
**Jiangzhou Qin, Xia Hu, Baojun Liu**  
Guizhou University, Guiyang, P.R. China

9:00 – 9:20  
IL

**Kinetic Model of Disinfection using Novel Chitosan-N-Doped TiO<sub>2</sub> Photocatalyst Derived from Fishery Waste**

**Li-Ting Yen<sup>1,4</sup>, Chih-Huang Weng<sup>2</sup>, Ying-Chen Chen<sup>1</sup>, Jing-Hua Tzeng<sup>1,3</sup>, Yao-Tung Lin<sup>1,\*</sup>**

<sup>1</sup> Department of Soil and Environmental Sciences, National Chung Hsing University, Taichung, Taiwan

<sup>2</sup> Department of Civil and Ecological Engineering, I-Shou University, Kaohsiung, Taiwan

<sup>3</sup> Department of Civil and Environmental Engineering, University of Delaware, DE, U.S.A.

<sup>4</sup> Department of Plants, Soils and Climate, Utah State University, UT, U.S.A

9:20 – 9:35  
ST

**Mo-BiVO<sub>4</sub> / Fe<sub>2</sub>TiO<sub>5</sub> Heterojunction Photoanodes for Improving Photoelectrochemical Water Splitting Performance**

**Zoherh Masoumi, Meysam Tayebi, Byeong-Kyu Lee\***

University of Ulsan, Ulsan, South Korea

9:35 – 9:50  
ST

**Photocatalytic H<sub>2</sub>O<sub>2</sub> Production Over G-C<sub>3</sub>N<sub>4</sub> Nanostructures**

**Utilizing Modified Cyanuric Acid-Melamine Complex as Precursor**  
**Hossein Fattahimoghaddam, Tahereh Mahvelati-Shamsabadi, Byeong-Kyu Lee\***

Department of Civil and Environmental Engineering, University of Ulsan, Republic of Korea

9:50 – 10:10

**Coffee Break**

**Session M: Advanced Oxidation Processes - III: Fenton Like Processes and Wastewater Treatment**

10:10 – 10:30  
IL

**Electro-Fenton Reaction by Porous Carbon Based**

**Electrocatalysts for Water and Wastewater Treatment**

**Xie Quan, Yanming Liu, Kun, Zhao**

Dalian University of Technology, Dalian, China

10:30 – 10:45  
ST

**Photochemical Degradation of Methylene Blue and Rhodamine B under Heterogeneous Photo-Fenton System Using**

**Cu<sup>II</sup><sub>x</sub>Fe<sup>II</sup><sub>1-x</sub>Fe<sup>III</sup><sub>2</sub>O<sub>4</sub> Ferrites**

**Asfandvar Khan<sup>1,2</sup>, Zsolt Valicsek<sup>1</sup>, Ottó Horváth<sup>1</sup>**

<sup>1</sup>Department of General and Inorganic Chemistry, University of Pannonia, Hungary

<sup>2</sup>Department of Textile Processing, National Textile University, Faisalabad – Pakistan

10:45 – 11:05  
IL  
**New Insights into the Synthesis of Fenton-like AOP Catalysts for Wastewater Treatment**  
Nataša Novak Tušar<sup>1,4</sup>, Ivalina Trendafilova,<sup>1,2</sup> Andraž Šuligoj,<sup>1,3</sup> Alenka Ristić,<sup>1</sup> Albin Pintar,<sup>1</sup> Nataša Zabukovec Logar,<sup>1,4</sup>  
<sup>1</sup>National Institute of Chemistry, Ljubljana, Slovenia  
<sup>2</sup>Institute of Organic Chemistry with Center of Phytochemistry, Bulgarian Academy of Sciences, Bulgaria  
<sup>3</sup>University of Ljubljana, Ljubljana, Slovenia  
<sup>4</sup>University of Nova Gorica, Nova Gorica, Slovenia

11:05 – 11:20  
ST  
**Evaluation of Photo-Fenton and Electro-oxidative Processes for the Pre-treatment of an Agro-industrial Wastewater**  
L. C. Ferreira<sup>1\*</sup>, I. Salmerón<sup>2</sup>, I. Oller<sup>2</sup>, J. A. Peres<sup>1</sup>, P. B. Tavares<sup>1</sup>, M. S. Lucas<sup>1</sup>  
<sup>1</sup>Centro de Química de Vila Real (CQVR), Universidade de Trás-os-Montes e Alto Douro, Vila Real, Portugal  
<sup>2</sup>Plataforma Solar de Almería-CIEMAT, Tabernas, Almería, Spain

11:20 – 11:35  
ST  
**Combination of Microalgae and Immobilized TiO<sub>2</sub>/UV-A LEDs to Winery Wastewater Treatment**  
L. Marchão<sup>1\*</sup>, J. R. Fernandes<sup>1</sup>, A. Sampaio<sup>2</sup>, J. A. Peres<sup>1</sup>, P. B. Tavares<sup>1</sup>, M. S. Lucas<sup>1</sup>  
<sup>1</sup>Centro de Química de Vila Real (CQVR), Universidade de Trás-os-Montes e Alto Douro, Portugal  
<sup>2</sup>Centro de Investigação e Tecnologias Agroambientais e Biológicas, Universidade de Trás-os-Montes e Alto Douro, Portugal

11:35 – 11:50  
ST  
**Vis (Solar) – Active TiO<sub>2</sub> - Graphene Oxide Composite Thin Films for Continuous Flow Photocatalytic Wastewater Treatment**  
Ioana Tismanar<sup>1</sup>, Alexandru Cosmin Obreja<sup>2</sup>, Octavian Buiu<sup>2</sup>, Anca Duta<sup>1</sup>  
<sup>1</sup>Transilvania University of Brasov, Brasov, Romania  
<sup>2</sup>National Institute for R&D in Microtechnologies, Bucharest, Romania

11:50 – 12:50  
**Lunch**

## **Session N: Poster Presentation – II**

12:50 – 13:00  
PP  
**Application of Coumarin to Determine and Compare the Rate of Hydroxyl Radical Formation in Aqueous Solutions Irradiated with 172 and 185 nm VUV Light**  
Luca Farkas, Daniele Scheres Firak, Máté Náfrádi, Tünde Alapi

University of Szeged, Hungary

- 13:00 – 13:10  
PP **Comparison of the Efficiency of Different Light Sources For The Generation Of Hydroxyl Radicals Using TiO<sub>2</sub> and ZnO Photocatalysts**  
**Máté Náfrádi, Tamás Hlogyik, Tünde Alapi**  
University of Szeged, Hungary
- 13:10 – 13:20  
PP **Removal of Two pharmaceuticals, 5-Fluorouracil and Trimethoprim from Aqueous Media with UV, UV/VUV and VUV Photolysis**  
**Luca Farkas, Anett Čovic, Máté Náfrádi, Tünde Alapi**  
University of Szeged, Hungary
- 13:20 – 13:30  
PP **Comparison of Xe-Excimer (172 nm) and Low-Pressure Mercury Vapor Lamps (185/254 nm) In Terms of Radical Generation Rate, Removal of Hazardous Organic Matter and Matrix Effect**  
**Tünde Alapi<sup>1</sup>, Luca Farkas<sup>1</sup>, Máté Náfrádi<sup>1</sup>, Gábor Peintler<sup>2</sup>**  
<sup>1</sup>Department of Inorganic and Analytical Chemistry, University of Szeged, Hungary  
<sup>2</sup>Department of Physical Chemistry and Material Sciences, Hungary
- 13:30 – 13:40  
PP **Transformation of Sulfamethazine and Sulfamethoxypyridazine Using TiO<sub>2</sub> and ZnO Photocatalysts Irradiated with Mercury-vapor and UV-LED Light Sources**  
**Máté Náfrádi, Luca Farkas, Gellért Farkas, Benjámín Vas, Tünde Alapi**  
Department of Inorganic and Analytical Chemistry, University of Szeged, Szeged, Dóm tér 7, Hungary
- 13:40 – 13:50 **Closing Remarks**