

The 6th International Conference on
**New Photocatalytic Materials for Environment, Energy
and Sustainability**
(NPM-6)

The 7th International Conference on
**Photocatalytic and Advanced Oxidation Technologies for
the Treatment of Water, Air, Soil and Surfaces**
(PAOT-7)

FINAL PROGRAM

National Institute of Chemistry, Ljubljana, Slovenia
April 4-6, 2022

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Dr. Petar Nadrah, Slovenian national building and civil engineering institute, Slovenia

Professor Bunsho Ohtani, Institute for Catalysis, Hokkaido University, Japan

Professor Giovanni Palmisano, Khalifa University of Science and Technology, United Arab Emirates

Professor Yaron Paz, Yitzhak Rabin Memorial Chair in Science, Engineering and Management of Water Resources, Technion, Israel

Professor Margarita Popova, Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Bulgaria

Dr. Jan Prochazka, Advanced Materials-JTJ, Czech Republic

Professor Xie Quan, Dalian University of Technology, China

Dr. Marina Ratova, Manchester Metropolitan University, United Kingdom

Professor Guenther Rupprechter, Technical University of Vienna, Austria

Professor Diana Sannino, Department of Industrial Engineering – University of Salerno, Italy

Professor Joaquin Silvestre-Albero, Inorganic Chemistry Department, University of Alicante, Spain

Dr. Andraž Šuligoj, National Institute of Chemistry and University of Ljubljana, Slovenia

Dr. Gregor Žerjav, National Institute of Chemistry, Slovenia

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IL: Stands for Invited Lecture (25 min)

ST: Stands for Short Talk (15 min)

Posters will be placed at the coffee breaks area and will be available to the participants throughout the conference

Monday, April 4, 2022

08:00 – 08:45 **On-site Registration**

08:45 – 09:00 **Introductory Remarks**

Session 1: Novel Photocatalysis Materials – I

Chair: Professor Nataša Novak Tušar

09:00 – 09:25
IL **True particle-size dependence of photocatalytic activity of octahedral-shaped anatase titania**
Bunsho Ohtani,* Mai Takashima
Institute for Catalysis, Hokkaido University, Sapporo, Japan

09:25 – 09:50
IL **Carbon-based heterojunction photocatalysts for liquid-phase degradation processes**
Coset Abreu-Jauregui, Antonio Sepulveda-Escribano,
Joaquin Silvestre-Albero*
Dpto. Química Inorgánica, Universidad de Alicante, Alicante, Spain

09:50 – 10:15
IL **Photocatalysis at polymer surfaces: A new approach to efficient degradation of organic matter**
Sebastijan Kovačič*, Sarah Jurjevec, Tomaž Kotnik, Gregor Žerjav, Ema Žagar, Albin Pintar
National Institute of Chemistry, Ljubljana, Slovenia

10:15 – 10:30
ST **Green synthesis of zinc oxide nanoparticles using Japanese knotweed extract**
Miha Ravbar¹, Andraž Šuligoj^{1,2*}
¹Faculty of chemistry and chemical technology, University of Ljubljana, Ljubljana, Slovenia
²National institute of chemistry, Ljubljana, Slovenia

10:30 – 10:50 **Coffee Break**

Session 2: Novel Photocatalysis Materials – II

Chair: Dr. Gregor Žerjav

10:50– 11:15
IL **Solar active co-catalysts for water purification and energy conversion**
Hrvoje Kusic, Francis dela Rosa, Klara Perovic, Tayebah Sharifi, Marin Kovacic, Ana Loncaric Bozic
Faculty of Chemical Engineering and Technology, University of Zagreb, Zagreb, Croatia

11:15 – 11:40
IL **Nickel modified ZnO nanoparticles as a novel photocatalyst for treating water polluted with pharmaceuticals**
Andraž Šuligoj^{1,2*} and Miha Ravbar¹
¹Faculty of Chemistry and Chemical Technology, University of Ljubljana, Ljubljana, Slovenia
²National Institute of Chemistry, Ljubljana, Slovenia

11:40 – 12:05
IL **Kinetic resolution of racemic mixtures via enantioselective photocatalysis**
Nitai Arbell, Kesem Bauer, Yaron Paz
Department of Chemical Engineering, Technion, Haifa, Israel

12:05 – 12:20
ST **The interplay between TiO₂ surface structure and the Nb/Gd dopants towards efficient phenol degradation**
Szymon Dudziak, Anna Zielińska-Jurek
Department of Process Engineering and Chemical Technology, Gdansk University of Technology, Gdansk, Poland

12:20 – 13:20 **Lunch Break**

Session 3: Characterization

Chair: Professor Nataša Zabukovec Logar

13:20 – 13:45
IL **Robust coherent spin centers from stable azafullerene radicals entrapped in cycloparaphenylene rings – an electron paramagnetic resonance study**
Denis Arčon

Jožef Stefan Institute, Ljubljana, Slovenia Faculty of Mathematics and Physics, University of Ljubljana, Ljubljana, Slovenia

13:45 – 14:10
IL

Monitoring chemical processes on the atomic scale in catalysts by operando x-ray absorption spectrometry

Iztok Arčon

University of Nova Gorica, Slovenia

14:10 – 14:35
IL

Cellular responses of microorganisms-materials interaction mechanisms under various disinfection-photocatalysts using transmission x-ray microscopy and soft x-ray tomography

Than Thi Nhu Anh¹, Chih-Huang Weng², Jing-Hua Tzeng^{1,3}, Li-Ting Yen^{1,4}, Kamonchanok Huangmee¹, Kesinee Iamsaard¹, Yao-Tung Lin^{1,5,*}

¹ Department of Soil and Environmental Sciences, National Chung Hsing University, Taiwan

² Department of Civil Engineering, I-Shou University, Taiwan

³ Department of Civil and Environmental Engineering, University of Delaware, Newark, DE, USA

⁴ Department of Plants, Soils, and Climate, Utah State University, Salt Lake, Utah, USA

⁵ Innovation and Development Centre of Sustainable Agriculture, National Chung Hsing University, Taiwan

Session 4: (Photo)electrocatalysis

Chair: Professor Petar Djinović

14:35 – 15:00
IL

Photo-, electro- and photoelectrocatalytic degradation of persistent organic pollutants (POPs) using TiO₂-based nanotube arrays

Miran Čeh¹, Ljubec Barbara^{1,2}, Živa Marinko^{1,2}, Belisa Alcantara Marinho¹, Marjan Bele³, Luka Suhadolnik¹

¹ Department for Nanostructured Materials, Jožef Stefan Institute, Ljubljana, Slovenia

² Jožef Stefan International Postgraduate School, Ljubljana, Slovenia

³ Department of Materials Chemistry, National Institute of Chemistry, Ljubljana, Slovenia

15:00 – 15:20

Coffee Break

- 15:20– 15:45
IL **In situ treatment of organic pollutants in water using photoelectrocatalysis**
Saim Emin^{1,*}, Takwa Chouki¹, Manel Machreki¹
¹Materials Research Laboratory, University of Nova Gorica, Slovenia
- 15:45 – 16:10
IL **The role of morphology and chemical structure of graphene-based derivatives in electrocatalysis**
Boštjan Genorio
Faculty of Chemistry and Chemical Technology, University of Ljubljana, Ljubljana, Slovenia
- 16:10 – 16:35
IL **Multifunctional microbial photo-electro-catalytic approaches for conversion of CO₂ to acetate**
Gianluca Li Puma¹ and Liping Huang²
¹Environmental Nanocatalysis & Photoreaction Engineering, Loughborough University, Loughborough, United Kingdom
²Key Laboratory of Industrial Ecology and Environmental Engineering, Dalian University of Technology, Dalian, China
- 16:35 – 16:50
ST **Deposition of BiVO₄ thin films by reactive magnetron co-sputtering for visible light photoelectrochemical water splitting**
Thomas Pomone¹, Marina Ratova¹, Glen West¹, Peter Kelly¹ and Tiziana Denaro²
¹ Surface Engineering Group, Department of Engineering, Manchester Metropolitan University, Manchester, UK
² Manchester Fuel Cell Innovation Centre, Manchester Metropolitan University, Manchester, UK
- 17:00 – 18:00 **Welcome Reception**

Tuesday, April 5, 2022

Session 5: Catalyst Treatment, Engineering and Modelling
Chair: Professor Zdravko Kravanja

- 08:30 – 08:55
IL **Predictive models for environmental pollutants degradation by solar photocatalysis in flat-plate reactors; semi-pilot to real scale applications**
I. Grčić^{*}, L. Radetić, J. Marčec, K. Miklec, L. Plantak and H. Meaški

University of Zagreb, Faculty of Geotechnical Engineering, Department of Environmental Engineering, Zagreb, Croatia

08:55 – 09:20
IL

Synthesis of sustainable processes and supply-chain networks based on mathematical programming

Zdravko Kravanja

Faculty of Chemistry and Chemical Engineering, University of Maribor, Maribor, Slovenia

09:20 – 09:45
IL

Towards on-demand photocatalysis: Controlling the operation of a photocatalytic reactor based on real-time, automatic monitoring of toxicity towards the working bacteria of a proceeding bioreactor

Yuejun Yu¹, Andraz Suligoj^{1,3}, Zach Shidlovsky¹, Dina Shachar², Sima Yaron², and Yaron Paz¹

¹Department of Chemical Engineering, Technion, Haifa, Israel

²Department of Biotechnology and Food Engineering, Technion, Haifa, Israel.

³Department of Inorganic Chemistry and Technology, National Institute of Chemistry, Ljubljana, Slovenia

09:45 – 10:10
IL

Multi-scale mechanistic photocatalysis modelling: From screening materials to reactors

Blaž Likozar, Miha Grilc, Matej Huš, Uroš Novak

National Institute of Chemistry, Ljubljana Slovenia

10:10 – 10:30

Coffee Break

10:30 – 10:55
IL

Photocatalytic properties of zirconium oxide impact of the calcination temperature

C. Guillard¹, J. Sakfali², S. B. Chaabene², R. Akkari², F. Dappozze¹, G. Berhault¹, M. Saïd Zina²

¹Institut de Recherches sur la Catalyse et l'Environnement de Lyon, CNRS -Université Lyon I, Villeurbanne, France

²Université de Tunis El Manar, Département de chimie, Laboratoire de Chimie des Matériaux et Catalyse, El Manar, Tunisie

10:55 – 11:10
ST

Insulators in photocatalysis: Investigation of alkaline-earth metal scheelite-type compounds as potential photocatalysts for solar-driven degradation of xenobiotics in the water system

**Marta Kowalkińska¹, Paweł Gluchowski², Jakub Karczewski³,
Anna Zielińska-Jurek¹**

¹Department of Processing Engineering and Chemical Technology,
Gdansk University of Technology, Gdańsk, Poland,

²Institute of Low Temperature and Structural Research, Polish Academy
of Sciences, Wrocław, Poland,

³Institute of Nanotechnology and Materials Engineering, Gdańsk
University of Technology

11:10 – 11:25
ST

**Zinc oxide and structural defects for photocatalysis:
between challenges and reality**

**Nouha Mediouni^{1,2}, Chantal Guillard*¹, Frederic Dappozze¹,
Lhoussain Khrouz⁴, Stephane Parola⁴, Christophe Colbeau-Justin⁵,
Abdesslem Ben Haj Amara², Hafsia Ben Rhaïem²,
Philippe Namour³**

¹Université Lyon 1, Institut De Recherche Sur La Catalyse Et
l'Environnement De Lyon (IRCELYON), CNRS, Villeurbanne, France.

²Université de Carthage, Faculté des Sciences de Bizerte, Laboratoire
Ressource Matériaux et Ecosystème, Zarzouna, Tunisie.

³INRAE, UR RiverLy, Centre de Lyon-Grenoble Auvergne-Rhône-
Alpes, Villeurbanne, France.

⁴Université Lyon 1, Ecole Normale Supérieure de Lyon, CNRS, UMR
5182, Laboratoire de Chimie, Lyon, France.

⁵Université Paris-Saclay, Institut de Chimie Physique, UMR 8000
CNRS, Orsay, France

Session 6: Advanced Oxidation Processes

Chair: Dr. Andraž Šuligoj

11:25 – 11:50
IL

**Use of plasmonic metals in advance oxidation processes
for wastewater treatment**

Žerjav Gregor, Albin Pintar

Department of Inorganic Chemistry and Technology, National Institute
of Chemistry, Ljubljana, Slovenia

11:50 – 12:15
IL

**E-Fenton like reaction enhanced by atomically dispersed
catalysts**

Xie Quan

Dalian University of Technology, China

12:15 – 13:15

Lunch Break

13:15 – 13:40
IL

New approaches in the catalysts' preparation for total oxidation of VOCs

Margarita Popova

Institute of Organic Chemistry with Centre of Phytochemistry,
Bulgarian Academy of Sciences, Bulgaria

13:40 – 14:05
IL

Double heterojunction to enhance charge separation and facile charge transfer using g-C₃N₄/Fe₂O₃/ZnO photoanode for efficient oxygen evolution reaction

Zohreh Masoumi, Byeong-Kyu Lee^{*}, Mina Kim

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

14:05– 14:30
IL

Adipic acid production by consecutive oxidation and reduction (of glucose) while reducing its NO_x footprint

**Miha Grilc¹, Žan Lavrič¹, Janvit Teržan¹, Florian M. Harth¹,
Brigita Hočevar, Anja Sedminek², Ana Kroflič³, Blaž Likozar¹**

¹Department of Catalysis and Chemical Reaction Engineering, National
Institute of Chemistry, Ljubljana, Slovenia

²Department for Materials Synthesis, Jožef Stefan Institute, Ljubljana,
Slovenia

³Department of Analytical Chemistry, National Institute of Chemistry,
Ljubljana, Slovenia

Session 7: Hydrogen Production

Chair: Professor Blaž Likozar

14:30 – 14:55
IL

Photocatalytic production of hydrogen from hydrogen sulphide: An experimental study and techno-economic evaluation

**Palmisano Giovanni^{1,2,3}, Oladipo Habeebllah⁴, Garlisi Corrado⁵,
Yusuf Ahmed^{1,2,3}**

¹Department of Chemical Engineering

²Centre for Membrane and Advanced Water Technology

³Research and Innovation Centre on CO₂ and H₂; Khalifa University,
Abu Dhabi, United Arab Emirates

⁴Process Design and Computational Engineering Laboratory, Process
Engineering Department, International Maritime College, Oman

⁵Luxemburg institute of science and technology

14:55 – 15:20
IL

Hydrogen production from methanol-water mixture over NiO/TiO₂ nanorods structure photocatalysts

H. Wang¹, H. Jiang², P. Huo², M. Filip Edelmannová³, L. Čapek⁴, K. Kočí³

¹ School of Energy and Power Engineering, Jiangsu University, Zhenjiang, PR China

² School of Chemistry and Chemical Engineering, Jiangsu University, Zhenjiang, PR China

³ Institute of Environmental Technology, CEET, VŠB-Technical University of Ostrava, Ostrava – Poruba, Czech Republic

⁴ Faculty of Chemical Technology, University of Pardubice, Pardubice, Czech Republic

15:20 – 15:45
IL

Photocatalytic abatement of organic pollutants with simultaneous clean energy production

Marin Kovačić*, Marijana Kraljić Roković, Tayebah Sharifi, Hrvoje Kušić

University of Zagreb, Faculty of Chemical Engineering and Technology, Zagreb, Croatia

15:45 – 19:30

Free Time

19:30 – 22:30

Banquet Dinner

Wednesday, April 6, 2022

Session 8: Air treatment

Chair: Urška Lavrenčič Štangar

08:30 – 08:55
IL

TiO₂-based photocatalysts for pollutant oxidation and CO₂ reduction

Peter Nadrah¹, Nejc Rozman² and Andrijana Sever Škapin¹

¹ Slovenian National Building and Civil Engineering Institute, Ljubljana, Slovenia

² MyCol, d.o.o., Ljubljana, Slovenia

08:55 – 09:20
IL

Ti-based nanocomposite materials for photocatalytic CO₂ reduction

P. Cool

Laboratory of Adsorption and Catalysis, Department of Chemistry, University of Antwerp, Wilrijk, Belgium

09:20 – 09:45
IL

Visible light assisted CO₂ valorization to C1 products over metal@oxide semiconductor photocatalysts

Kristijan Lorber^{1,3}, Janez Zavašnik², Jordi Sancho-Parramon⁴, Matej Bubaš⁴, Matjaž Mazaj¹ and Petar Djinović^{1,3}

¹ National Institute of Chemistry, Ljubljana, Slovenia,

² Jožef Stefan Institute, Ljubljana, Slovenia

³ University of Nova Gorica, Slovenia, ⁴ Ruđer Bošković Institute, Zagreb, Croatia

09:45 – 10:10
IL

Decontamination of air in the cities – Nitrogen oxides (NO_x)

Jan Prochazka,

Advanced Materials-JTI., Czech Republic

10:10 – 10:30

Coffee Break

10:30 – 10:55
IL

Solar photocatalysis for oxidation of ammonia in air using TiO₂ modified recycled rubber

Marija Tomaš¹, Paula Benjak¹, Lucija Radetić¹, Ivan Brnardić² and Ivana Grčić¹

¹University of Zagreb, Faculty of Geotechnical Engineering, Varaždin, Croatia

²University of Zagreb, Faculty of Metallurgy, Croatia

Session 9: Water treatment

Chair: Dr. Albin Pintar

10:55 – 11:20
IL

Utilization of carbon nanotube as a composite component of TiO₂ modified PVDF membranes used for oil-in-water emulsion separation

Gábor Veréb¹, Laura Fekete¹, Ákos Ferenc Fazekas^{1,2}, Szabolcs Kertész¹, Sándor Beszédes¹, Zoltán Jákói^{1,2}, Cecilia Hodúr¹, Zsuzsanna László¹, Gábor Kovács³, Gangasalam Arthanareeswaran⁴, Zsolt Pap⁵, Tamás Gyulavári⁵, Klára Hernádi^{5,6}

¹Department of Biosystems Engineering, Faculty of Engineering, University of Szeged, Szeged, Hungary

²Doctoral School of Environmental Sciences, University of Szeged, Szeged, Hungary

³Department of Horticulture, sciences, Sapientia Hungarian University of Transylvania, Cluj-Napoca, Romania

⁴ Membrane Research Laboratory, National Institute of Technology, Tamilnadu, India

⁵Department of Applied and Environmental Chemistry, University of Szeged, Szeged, Hungary

⁶Metal Forming and Nanotechnology, University of Miskolc, Miskolc-Egyetemváros, Miskolc, Hungary

11:20 – 11:45
IL

UV-promoted photocatalytic hydrogen production from phenol aqueous solutions and in the treatment of olive mill wastewater

Diana Sannino, Vincenzo Vaiano, Giuseppina Iervolino

Department of Industrial Engineering, University of Salerno, via Giovanni Paolo II, Italy

11:45 – 12:10
IL

Application of photocatalytic composite membranes for dairy wastewater treatment

Elias Jigar Sisay^{1,2*}, Gábor Veréb², Szabolcs Kertész², Gangasalam Arthanareeswaran³, Gokula Krishnan³, Zsuzsanna László^{2,4}

¹Doctoral School of Environmental Sciences, University of Szeged, Hungary

²Department of Biosystems Engineering, Faculty of Engineering, University of Szeged, Szeged, Hungary

³Department of Chemical Engineering, National Institute of Technology, Tiruchirappalli, India

⁴Institute of Environmental Science and Technology, University of Szeged, Szeged, Hungary

12:10 – 13:10

Lunch Break

13:10 – 13:35
IL

Photocatalytic degradation of pharmaceuticals in wastewater

Lev Matoh^{1*}, Boštjan Žener¹, Urška Lavrenčič Štangar¹

¹Faculty of Chemistry and Chemical Technology, University of Ljubljana, Ljubljana, Slovenia

13:35 – 14:00
IL

Impact of water matrices and inorganic ions on the removal of organic pollutants by TiO₂/LED and ZnO/LED heterogeneous photocatalysis using 365 nm and 398 nm irradiation – radical formation, reaction mechanism, mineralization, and efficiency

Máté, Náfrádi, Luca Farkas, Gábor Kozma, Zsolt Papp, Tünde Alapi

Department of Inorganic and Analytical Chemistry, University of Szeged, Szeged, Hungary

14:00– 14:15
ST

Degradation of pharmaceuticals by a newly synthesized solar-driven photocatalyst

Elvana Cako, Anna Zielińska-Jurek*

Department of Processing Engineering and Chemical Technology,
Gdansk University of Technology, Gdańsk, Poland

Session 10: Application of Photocatalysis

Chair: Professor Boštjan Genorio

14:15 – 14:40
IL

Watching oxidation reactions on energy-relevant nanostructures

Günther Rupprechter

Institute of Materials Chemistry, TU Wien, Vienna, Austria

14:40– 15:05
IL

Stable and conductive titanium oxynitride high surface area support for electrocatalysts

Marjan Bele¹, Luka Suhadolnik², Leonard Moriau^{1,3}, Primož Jovanovič¹, Francisco Ruiz-Zepeda¹, Gorazd Koderman Podboršek^{1,3}, Boštjan Genorio⁵, Miran Gaberšček^{1,5}, Nejc Hodnik^{1,3,4}

¹National Institute of Chemistry, Ljubljana, Slovenia

²Jožef Stefan Institute, Ljubljana, Slovenia

³Jožef Stefan International Postgraduate School, Ljubljana, Slovenia

⁴University of Nova Gorica, Nova Gorica, Slovenia

⁵Faculty of Chemistry and Chemical Technology, University of Ljubljana, Ljubljana, Slovenia

15:05 – 15:30
IL

Decontamination of air in the cities – ozone and VOCs

Jan Prochazka

Advanced Materials-JTJ., Czech Republic

15:30 – 15:50

Coffee Break

15:50 – 16:15
IL

Innovative photocatalytic paints for healthy Indoor environment and energy saving: The LIFEVISIONS project

Th. Maggos¹, P. Panagopoulos¹, D. Saraga¹, C. Theodorou², A. Nikolakopoulos², F. Barbas³, E. Giama³, L. Fragkou, N. Moussiopoulos³, A. Papadopoulos³, Th. Karlesi⁴, I. Michopoulos⁴,

G. Kiriakidis^{5,6}, V. Binas⁵

¹Atmospheric Chemistry and Innovative Technologies, Laboratory, INRASTES/NCSR Demokritos, Athens, Greece

²VITEX S.A Aspropyrgos, Greece

³Department of Mechanical Engineering, Aristotle University Thessaloniki, Greece

⁴Evolution Projects, Athens Greece

⁵Institute of Electronic Structure & Lasers, FORTH, Heraclion Greece,

⁶PCN Materials IKE, Crete, Greece

16:15 – 16:40

IL

Novel complex bismuth oxide-based photocatalysts and their potential for environmental applications

Marina Ratova¹

¹Advanced Materials and Surface Engineering Research Centre, Manchester Metropolitan University, Chester Street, Manchester, UK

16:40– 17:05

IL

Lifetime prediction for commercial CSP coating from a lab perspective

Ivan Jerman^{*}, Luka Noč, Franci Merzel

National Institute of Chemistry, Slovenia

17:05 – 17:20

ST

Efficiency of pristine and composite bio(x=cl, br, i) photocatalysts using uv and visible light

Máté Náfrádi, Tünde Alapi

Department of Inorganic and Analytical Chemistry, University of Szeged, Szeged, Hungary

17:20 – 17:35

ST

Synthesis of highly porous polymeric photocatalysts with various condensation reaction

Tomaž Kotnik, Gregor Žerjav, Albin Pintar, Ema Žagar, and Sebastijan Kovačič^{*}

National Institute of Chemistry, Ljubljana, Slovenia

17:35

Adjourn

POSTERS

Immobilization of titanium dioxide on rubber tiles made from recycled tyres

Paula Benjak^{1*}, Ivana Grčić¹, Ivan Brnardić³

¹ University of Zagreb, Faculty of Geotechnical Engineering, Croatia

² University of Zagreb, Faculty of Metallurgy, Sisak, Croatia

Multiphysics modeling of environmental pollutants degradation by solar photocatalysis in semi-pilot reactors

L. Radetić*, J. Marčec, K. Miklec, B. Radetić, I. Grčić

University of Zagreb, Faculty of Geotechnical Engineering, Department of Environmental Engineering, Zagreb, Croatia

Removal of trimethoprim and 5-fluorouracil by uv/persulfate and uv/vuv persulfate methods

Luca Farkas, Adrienn Szirmai, Anett Covič, Tünde Alapi

Department of Inorganic and Analytical Chemistry, University of Szeged, Szeged, Hungary

Comparison of the low-pressure mercury-vapor lamp and Xe*-excimer lamp for the transformation of sulfonamides -inhomogeneity, mineralization, toxicity, and the effect of inorganic ions

Luca Farkas, Tünde Alapi

Department of Inorganic and Analytical Chemistry, University of Szeged, Szeged, Hungary

Influence of the calcination of TiO₂-reduced graphite hybrid for the photocatalytic reduction of carbon dioxide

A. W. Morawski¹, E. Kusiak-Nejman¹, A. Wanag¹, U. Narkiewicz¹, M. Edelmannová², M. Reli², K. Kočí²

¹ West Pomeranian University of Technology in Szczecin, Department of Inorganic Chemical, Szczecin, Poland

² Institute of Environmental Technology, CEET, VŠB-Technical University of Ostrava, Ostrava, Czech Republic