



25
28
June 2014
Thessaloniki
Greece

Oral Presentation Program

DAY - 1 Wednesday 25 June, 2014

17:00 - 20:15 **Registration**

20:15 - 21:00 **The Antikythera Mechanism: Decoding an astonishing ancient Greek astronomical computer**
John H. Seiradakis, Aristotle University of Thessaloniki, Greece

21:00 **Cheese & Wine Welcome Reception**

DAY - 2 Thursday 26 June, 2014

08:00 - 08:30 **Registration**

08:30 - 08:45 **Welcome & Opening**

Session 1: Process Fundamentals

Session chairs: *Didier Robert, John Byrne*

PL 1
08:45 - 09:25 **Plenary Lecture 1: Photocatalysis - Present Situation and Future Approaches**
Akira Fujishima, Tokyo University of Science, Japan

OC1
09:25 - 09:45 **A New Reaction Mechanism of TiO₂ Heterogeneous Photocatalysis Based on the Participation of Surface Bridging Oxygens**
Jose Peral, Juan F. Montoya, Pedro Salvador and Detlef Bahnemann

OC2
09:45 - 10:05 **Kinetics of Simultaneous Photochemical and Photocatalytic Dye Degradation in Aqueous Systems**
David Ollis

OC3
10:05 - 10:25 **Modeling Strategy for the Determination of Photocatalytic Reaction Kinetics in Supported Catalyst Reactors**
Anaëlle Cloteaux, Fabien Gérardin, Dominique Thomas, Jean-Claude André and Noël Midoux

OC4
10:25 - 10:45 **Advanced Oxidation Process Efficiency Using Persulfate Activation with Fe(III)-EDDS Complex and Iron Oxides: Formation, Reactivity and Kinetic of Sulfate Radical vs a Selected Pollutant**
Gilles Mailhot, Yanli Wu, Romain Prulho, Khalil Hanna, Wenbo Dong and Marcello Brigante

OC5
10:45 - 11:05 **Band Gap Modification of ZnO and ZnS for Photocatalysis: A Computational Study**
Judy Hart, Michele Cutini and Neil Allan

11:05 - 11:30 **Coffee Break & Poster Session 1**

Session 2: New Materials for Photochemistry and Photocatalysis

Session chairs: *Josef Krýsa, Gianluca Li Puma*

OC6
11:30 - 11:50 **Cluster Models of Photocatalytic Anatase TiO₂ Nanoparticles and Their Computational Characterization**
Alexander Vorontsov and Dmitry Tsydenov

OC7
11:50 - 12:10 **Effect of Surface Hydrating on Superhydrophilic Conversion of ZnO and TiO₂ Surfaces**
Alexei Emeline, Aida Rudakova, Anna Murashkina, Konstantin Nikitin, Uliana Oparicheva and Anastasia Grishina

OC8
12:10 - 12:30 **New Materials for Solar Photocatalytic Water Treatment and Disinfection**
John Byrne, A. Clarke, Brenda Cruz-Ortiz, Dionisios Dionysiou, Patrick Dunlop, Pilar Fernandez, Jeremy Hamilton, Changseok Han, Emma Magee, Kevin O'Shea, Miguel Pelaez, Suresh Pillai, Inma Polo-Lopez, Preetam, Sharma and Shikha Wadhwa

OC9
12:30 - 12:50 **Light Pre-Treatment as a Means of Activating Pt/TiO₂ for Catalytic Oxidation.**
Jason Scott, Wenny Irawaty, Gary Low and Rose Amal

OC10 Preparation and Photocatalytic Activity of Fluoroalkyl End-capped Vinyltrimethoxysilane
Oligomer/Anatase Titanium Oxide Nanocomposites – encapsulated Low Molecular Weight Aromatic
Compounds.
12:50 - 13:10 *Hideo Sawada and Sujuan Guo*

OC11 Ag-TiO₂-SiO₂ Nanocomposite Coatings with Enhanced Photoactivity for Self-Cleaning Applications on
Building Materials.
13:10 - 13:30 *Luís Pinho, María Rojas and María J. Mosquera*

13:30 - 15:00 **Lunch Break & Poster Session 1**

Session 3: Photocatalytic Systems for H₂ Production and CO₂ Utilization

Session chairs: *Dimitris Kondarides, Wojciech Macyk*

PL 2 Plenary Lecture 2: Photocatalytic Production of Hydrogen
15:00 - 15:40 *Elena Selli, University of Milan, Italy*

OC12 Photocatalytic Reduction of CO₂ over A Nanocomposite Photocatalyst Composed of WO₃ and g-C₃N₄ Under
Visible Light
15:40 - 16:00 *Teruhisa Ohno*

OC13 Tuning of the Reduction Properties of Photoexcited TiO₂ P25
16:00 - 16:20 *Alessandra Molinari, Andrea Maldotti and Rossano Amadelli*

OC14 CO₂ Reduction In Gas-Solid Regime By Using GaP/TiO₂ As Photocatalyst
16:20 - 16:40 *Giuseppe Marci, Elisa Isabel Garcia-Lopez and Leonardo Palmisano*

OC15 Unexpected Role of Oxygen in the Photocatalytic Hydrogen Production on Pt-loaded TiO₂
16:40 - 17:00 *Claudio Minero and Fabrizio Sordello*

17:00 - 17:30 **Coffee Break & Poster Session 1**

Session 4: Photocatalytic Systems for H₂ Production and CO₂ Utilization

Session chairs: *Alexander Vorontsov, Claudio Minero*

OC16 One Electron Reduction of Carbon Dioxide – CO₂ Fixation in Photocatalytic Carboxylation Process at Zinc
Sulphide Photocatalysts
17:30 - 17:50 *Wojciech Macyk, Tomasz Baran, Angela Dibenedetto, Michele Aresta and Krzysztof Kruczała*

OC17 Hydrogen Production by Photocatalytic Reforming of Biomass Using Carbon Nanotube-TiO₂ Composite
Materials
17:50 - 18:10 *Joaquim L. Faria, Rita R.N. Marques, Adrián M.T. Silva and Cláudia G. Silva*

OC18 Steam Reduction of CO₂ on Pd/TiO₂ Catalysts: A Comparison Between Thermal and Photocatalytic Reaction
18:10 - 18:30 *Vincenzo Vaiano, Diana Sannino and Paolo Ciambelli*

OC19 Hysteresis Phenomena and Rate Fluctuations under Conditions of Glycerol Photo-reforming Reaction over
CuO_x/TiO₂ Catalysts
18:30 - 18:50 *Evangelia Ioannidou, Athanasia Petala, Aglaia Georgaka, Kyriakos Mpourikas and Dimitris Kondarides*

OC20 Low Temperature Route to Metal Titanate Perovskite Nanoparticles for Photocatalytic Hydrogen
Formation
18:50 - 19:10 *Michael Wark, Ines Hamm, Tarek Alammam and Anja-Verena Mudring*

OC21 Photocatalytic Hydrogen Evolution from Aqueous Solution of Ethanol under Visible Light
19:10 - 19:30 *Ekaterina Kozlova, Dina Markovskaya, Svetlana Cherepanova and Valentin Parmon*

OC22 Plasmonic Photocatalysts with Improved Charge Transfer Dynamics for Artificial Photosynthesis
19:30 - 19:50 *L. Collado, A. Reynal, J.R. Durrant, J.M. Coronado, D.P. Serrano, V.A. de la Peña O'Shea*

DAY - 3 Friday 27 June, 2014

Session 5: New Materials for Photochemistry and Photocatalysis

Session chairs: *Nikos Katsarakis, Alexei Emeline*

PL 3 Plenary Lecture 3: New Trends in Photocatalysis: New Concept and New Materials
08:45 - 09:25 *Bao-Lian Su, University of Namur, Belgium*

OC23 Enhanced Photocatalytic Activity for TiO₂-based Nanostructures. The Effect of Nanoparticles Size and
Shape
09:25 - 09:45 *Anna Zielińska-Jurek, Marcin Janczarek and Bunsho Ohtani*

OC24 09:45 - 10:05	Mineralization of 2,4-dichlorophenoxyacetic acid (2,4-D) Using Fresh and Calcined ZnAlCe Layered Double Hydroxides <i>Angeles Mantilla, Victor Suárez-Quezada, Elizabeth Navarro-Cerón, Guadalupe Romero-Ortiz, Francisco Tzompantzi, Getsemani Morales-Mendoza and Saul Robles</i>
OC25 10:05 - 10:25	Photocatalytic Textiles for Water and Air Depollution <i>Damia Grégori, I. Benchenaa, D. Léonard, S. Therias, J-L Gardette, C. Brunon, Stéphane Parola and Chantal Guillard</i>
OC26 10:25 - 10:45	Synergy Between Cr⁶⁺ and Ti⁴⁺ in The Novel Cr-Ti-TUD-1: A Unique Photocatalyst for Gas-Phase Oxidation of Light Hydrocarbons (C1-C3) for Air Purification <i>Mohamed S. Hamdy, Guido Mul</i>
OC27 10:45 - 11:05	Various TiO₂ Nanostructures for Decomposition of Ethanol and Bacteria using Visible Light <i>Imre Dékány, László Janovák, Szabolcs Tallósy, Ágnes Veres, Ziyi Zhong, Ádám Juhász and Norbert Buzás</i>
11:05 - 11:30	Coffee Break & Poster Session 2
	Session 6: Photo-Fenton and Alike Processes Session chairs: <i>Sixto Malato, Héctor Mansilla</i>
OC28 11:30 - 11:50	Determination of Photostability, Biocompatibility and Efficiency as Photo-Fenton Auxiliaries of Three Different Types of SBOs <i>Antonio Arques, Ana M. Amat, Juan Gomis, Alessandra Bianco Prevot, Mayara Gabriela Gonçalves, M.Consuelo Sabater and Maria Angeles Castillo Lopez</i>
OC29 11:50 - 12:10	Treatment of Mature Landfill Leachate by Fenton and photo Fenton processes: Effect of Ferrioxalate Complex <i>Katia R B Nogueira, Adriana C Velosa and Cláudio A O Nascimento</i>
OC30 12:10 - 12:30	Insights into Solar Photo-Fenton Reaction Parameters in the Oxidation of a Sanitary Landfill Leachate at Lab-Scale <i>Tânia Silva, Rui Ferreira, Petrick Soares, Diego Manenti, Olga Sousa, Amélia Fonseca, Isabel Saraiva, Rui Boaventura and Vítor Vilar</i>
OC31 12:30 - 12:50	Goethite as an Efficient Heterogeneous Fenton-like Catalyst towards Degradation of Methyl Orange <i>Yaowen Gao, Yan Wang and Hui Zhang</i>
OC32 12:50 - 13:10	Implementation of an Alternative Method for Wastewater Treatment Using Photocatalytic Oxidation, Constructed Wetlands and Ultrafiltration at Thirasia Island at the Aegean Sea <i>Apostolos Antoniadis, Vasileios Takavakoglou, George Zalidis and Ioannis Poullos</i>
OC33 13:10 - 13:30	Municipal Wastewater Effluent Disinfection with Solar Photo-Fenton Process: Benefits of Using EDDS Complex at Neutral pH <i>Pilar Fernandez-Ibañez, Irene García-Fernández, Sara Miralles-Cuevas, M. Inmaculada Polo-López and María Castro-Alfárez</i>
13:30 - 15:00	Lunch Break & Poster Session 2
	Session 7: Emerging Processes Session chairs: <i>Sylvie Lacombe, José Peral</i>
PL 4 15:00 - 15:40	Plenary Lecture 4: Photo-Fuel-Cells for Electricity and Solar Fuel Production <i>Panagiotis Lianos, University of Patras, Greece</i>
OC34 15:40 - 16:00	Nanoparticulated Zerovalent Iron Light Enhanced Activity for Cr(VI) Removal <i>Natalia Quici, Victor Nahuel Montesinos and Marta Irene Litter</i>
OC35 16:00 - 16:20	UV Light-activated Persulfate Oxidation of Erythromycin in Aqueous Matrices: Evaluation of Operational Parameters and Removal of Antibiotic Resistance <i>Irene Michael, Maria Iacovou, Zacharias Frontistis, Popi Karaolia, Evroula Hapeshi, Dionysios Dionysiou and Despo Fatta-Kassinos</i>
OC36 16:20 - 16:40	Photosensitized Oxidation of 9,10-Dimethylanthracene with Singlet Oxygen by Using Safranin O/Silica Composite <i>Miguel A. Valenzuela, Elim Albiter Escobar and Salvador Alfaro</i>
OC37 16:40 - 17:00	Kinetic Model of the Photocatalytic Degradation of the Pharmaceutical Clofibrac Acid <i>Orlando Alfano, María Satuf and Agustina Manassero</i>
17:00 - 17:20	Coffee Break & Poster Session 2

Session 8: Gas Phase Applications

Session chairs: *Leonardo Palmisano, Nikos Xekoukoulotakis*

- OC38**
17:20 - 17:40
Zeolite-TiO₂ Hybrid Composites for Degradation of Pollutants in Gas Phase
Ingrid Jansson, Silvia Suárez, Javier García-García and Benigno Sánchez
- OC39**
17:40 - 18:00
Optimization of Photocatalytic Media Geometry for the Improvement of Indoor Air PCO Treatment
Louis Olivier, F. Batault, O. Debono, A. Subrenat, Valérie Héquet, C. Raillard, F. Thénever, Laurence Le Coq and N. Locoge
- OC40**
18:00 - 18:20
Ta and Sn-doped TiO₂ as Photocatalyst for Elimination of Diethylsulfide in the Gas Phase
Armelle Sengele, Valérie Keller, Didier Robert and Nicolas Keller
- OC41**
18:20 - 18:40
Morphosynthesis of Metal Doped TiO₂ Nanostructures and their Application for Air Pollutants Oxidation
Maria Veronika Sofianou, Vassilis Psycharis, Tiverios Vaimakis and Christos Trapalis
- OC42**
18:40 - 19:00
Analysis of the Effect of Pt Nanoparticles on the Photocatalytic Gas Phase Oxidation of Propane and Ethanol over TiO₂
Bindikt Fraters and Guido Mul
- OC43**
19:00 - 19:20
Efficiency and Harmfulness of Air-purifying Photocatalytic Commercial Devices: From Standardized Chamber Tests to Nanoparticles Release
Nathalie Costarramone, Benoit Kartheuser, Christophe Pécheyran and Sylvie Lacombe
- 20:30
Conference Dinner

DAY - 4 Saturday 28 June, 2014

Session 9: Photocatalytic Applications

Session chairs: *Miray Bekbolet, Joaquim Faria*

- PL5**
09:00 - 09:40
Plenary Lecture 5: "Neutral Photo-Fenton vs. TiO₂ Photocatalysis to Enhance Drinking Water Disinfection by Solar Light . A Critical Vision"
Cesar Pulgarin, EPFL, Switzerland
- OC44**
09:40 - 10:00
Application of Raceway Ponds Reactors for Micropollutant Removal by Solar Photo-Fenton
José Antonio Sánchez Pérez, Irene Carra, Lucas Santos-Juanes and Sixto Malato
- OC45**
10:00 - 10:20
Modelling of the Oxidation of Methanol in a Tubular Slurry Photocatalytic Reactor by Computational Fluid Dynamics
Javier Marugan, C. Casado, R. Timmers and R. van Grieken
- OC46**
10:20 - 10:40
Cleaning the Air we Breathe: Degradation of Allergens of Pollen by Heterogeneous Photocatalysis
Eva Jimenez-Relinque, Maria Sapiña, Roman Nevshupa, Elisa Román and Marta Castellote
- OC47**
10:40 - 11:00
Ways for the Estimation of Environmental and Economic Impact of Advanced Oxidation Processes
Jaime Giménez, Bernardino Bayarri, Oscar González, Sixto Malato, José Peral and Santiago Esplugas

11:00 - 11:30 Coffee Break & Poster Session 3

Session 10: Photocatalytic Applications

Session chairs: *Orlando Alfano, Polycarpos Falaras*

- OC48**
11:30 - 11:50
Influence of Radiation on the •OH Generation in a Photocatalytic LED Reactor. Application to Removal of Dodecylbenzenesulphonate.
Maria Rivero, Sara Dominguez, Paula Ribao and Inmaculada Ortiz
- OC49**
11:50 - 12:10
Urban Wastewater Disinfection by SODIS and Solar Driven AOPs: Effect on a Multi-Drug Resistant *E. Coli* Strain
Luigi Rizzo, Giovanna Ferro, Antonino Fiorentino, M. Inmaculada Polo-López, María Castro Alférez and Pilar Fernández Ibáñez
- OC50**
12:10 - 12:30
A Novel Micro-capillary Array Film Photoreactor for Intensified Photochemistry and Photocatalysis
Gianluca Li Puma, A. Cihanoğlu, Y. Chen, C. Crump and N. Reis
- OC51**
12:30 - 12:50
Optimising the Thin Film Photocatalytic Spinning Disc Reactor
Wan Salida, Wan Mansor, Emma A.C. Emanuelsson and Darrell A. Patterson

OC52 **Photocatalytic Degradation of Cyanobacterial Metabolites MC-LR, CYN, MIB and GSM under Visible Light**
12:50 - 13:10 *Anastasia Hiskia, Theodora Fotiou, Theodoros Triantis and Triantafyllos Kaloudis*

OC53 **The Effect of Humic Acids on the Removal of Atrazine from Water in a Continuous Photocatalytic Membrane Reactor**
13:10 - 13:30 *Anastasios J. Karabelas, Konstantinos V. Plakas, Vasilis C. Sarasidis and Sotiris I. Patsios*

13:30 - 15:00 **Lunch Break & Poster Session 3**

14:30 - 15:15 **ISC Meeting**

Session 11: Synthesis and Characterization of Materials

Session chairs: *Teruhisa Ohno, Yaron Paz*

OC54 **Preparation of β -Bi₂O₃ Nanoparticles for Photocatalytic Degradation of Orange II under Visible Light**
15:20 - 15:40 *Didier Robert, Prisca Ayekoé and Droh Lanciné Goné*

OC55 **Synthesis and Solar Light Catalytic Properties of the Titania-Sulfide Hybrid Nanostructures**
15:40 - 16:00 *A.A. Rempel, E.A. Kozlova, T.I. Gorbunova, S.V. Cherepanova, E.Yu. Gerasimov, A.A. Valeeva, E.Yu. Korovin, S.V. Tsybulya, Yu. A. Shchipunov*

OC56 **Development of Visible Light-Active Rhodium-modified Titania: Considerations on Influence of Titania Crystalline Structure on Optimal Doping Ratio**
16:00 - 16:20 *Joanna Kuncewicz and Bunsho Ohtani*

OC57 **New Structural Entities for Photocatalysis: “Crystallographic Holes” and Crystal Shapes**
16:20 - 16:40 *Zsolt Pap, Krisztina Vajda, Éva Karácsonyi, István Székely, Kata Saszet, Zsolt Kedves, András Dombi, Klára Hernádi, Gábor Kovács, Virginia Danciu and Lucian Baia*

16:40 - 17:00 **Coffee Break & Poster Session 3**

Session 12: Synthesis and Characterization of Materials

Session chairs: *Anastasia Hiskia, Chantal Guillard*

OC58 **Fe,Nb-doped BiOCl and its Photocatalytic Properties**
17:00 - 17:20 *Yaron Paz, Milka Nussbaum and Nurit Shaham-Waldmann*

OC59 **Smart Inks as Photocatalytic Activity Indicator of Self-cleaning Paints**
17:20 - 17:40 *Josef Krýsa, Michal Baudys, James Hepburn and Andrew Mills*

OC60 **Oxidation of Arsenite on the Solid Surface of Kaolinite under Irradiation of UV-A Lamp**
17:40 - 18:00 *Wei Ding, Yajie Wang, Feng Wu and Danna Zhou*

OC61 **On Photoactivity of Novel Metal-Doped Zinc Oxide Nanopowders (An *in situ* EPR study)**
18:00 - 18:20 *Dana Dvoranová, Andrea Čaklášová, Miroslava Bobeničová, Ivan Litzov and Christoph Brabec*

18:20 - 18:40 **Closing, Poster Prize Awards & SPEA9 Presentation**