



**2nd Summer School on
Environmental Applications of Advanced Oxidation Processes
and Training School on
Advanced Treatment Technologies and Contaminants of Emerging Concern
(NEREUS COST Action ES1403)**

Venue: Auditorium of the Almeida Garrett Municipal Library

Biblioteca Municipal Almeida Garrett, Rua de D. Manuel II - Jardins do Palácio de Cristal

4050-239 Porto, Portugal

July 10-14, 2017



The “European PhD School on Advanced Oxidation Processes” (**School**) and NEREUS COST Action ES1403, with the support of Associate Laboratory LSRE-LCM, Department of Chemical Engineering, Faculty of Engineering, University of Porto, organize the 2nd Summer School on “Environmental Applications of Advanced Oxidation Processes” jointly with the NEREUS Training School on “Advanced Treatment Technologies and Contaminants of Emerging Concern” in July 10-14, 2017, at the Auditorium of the Almeida Garrett Municipal Library, Cristal Palace Gardens (**Page 8**), considered Porto’s most beautiful gardens overlooking the Douro River.

The **School**, founded in June 2014 by a group of European scientists (Management Committee - MC) from different Universities and Research Institutes, promotes the higher education of young researchers in the environmental applications of AOPs (please visit our official web-page for further details: www.aops-school.com). Currently, the **School** includes 53 Scientific Committee (SC) members from 14 different European countries.





The Summer School is among the initiatives organized for **School** PhD candidates but other PhD students, MSc students, post-doctoral researchers and professionals are also welcome. The Summer School program (**Page 7**) includes: (i) a section specifically devoted to PhD students (“Floor to PhD Students”) where they will have the chance to introduce themselves and their work, **through a short oral presentation (3 min) and/or a poster communication (posters MUST be smaller than 1200 mm height × 900 mm large, A0 size recommended - 1189 × 841 mm)**, as well as to meet experts from the **School**; (ii) a special session on “Contaminants of emerging concern and antibiotic resistance control in water/wastewater by AOPs”; (iii) lectures on complementary skills; (iv) a workshop on advanced treatments delivered by **School** Scientific Committee members and international experts; and (v) a technical-social visit sponsored by Adventech. **Invited Lectures are typically of 30 min, including questions.**

Research presented by all participants at the Summer School will be considered for possible publication in two special issues, *Environmental Science and Pollution Research* (**ESPR**, Springer, Impact Factor: 2.760) or *Journal of Environmental Chemical Engineering* (**JECE**, Elsevier, cite score 3.21). Only manuscripts dealing with “Wastewater Reuse and Antibiotic Resistance” will be considered for JECE. Authors will receive an invitation letter by email. Authors should reply to the email specifying the type of article (critical review or research paper), the preliminary title and the name of the authors.

In the case of **ESPR**, please don’t forget to select the article type “AOPsPhDSchool” Special Issue during the paper submission process, and attach the respective invitation letter as a “Supplementary Material” file. The deadline for paper submission to the Special Issue on the **ESPR** journal is **30th September 2017**.

In the case of **JECE**, please don’t forget to select the article type “SI: Wastewater Reuse and Antibiotic Resistance” during the paper submission process. The deadline for paper submission to the Special Issue on the **JECE** journal is **15th September 2017**.

Any update (including the registration form) will be published in the “Summer School 2017” section of **School** official web-page: www.aops-school.com

Organization contact email address: aops@fe.up.pt

Summer School Chairs

Adrián M.T. Silva

Associate Laboratory LSRE-LCM, FEUP, University of Porto

Vítor J.P. Vilar

Associate Laboratory LSRE-LCM, FEUP, University of Porto

Luigi Rizzo

University of Salerno, Italy

Chair of European PhD School on AOPs

Despo Fatta-Kassinis

NIREAS-IWRC, University of Cyprus

Chair of NEREUS COST Action ES1403



Monday July 10, 2017 (School introduction and “Floor to PhD students”)

- 8h00 – 9h00 **Registration**
- 9h00 – 9h20 **Welcome greetings and Introduction of the Summer School**
- 9h20 – 10h30 **Publication of research results**
FEUP Library Team
- 10h30 – 11h00 **COFFEE BREAK**
- 11h00 – 12h30 **Short Oral Communications (PhD students)**
- 13h30 – 14h00 **LUNCH BREAK**
- 14h00 – 15h30 **Short Oral Communications (PhD students)**
- 15h30 – 16h30 **How to get your article published: An editor perspective**
Gianluca Li Puma, Loughborough University, UK
Editor, Journal of Hazardous Materials (Elsevier)
- 16h30 – 18h00 **POSTER SESSION & COFFEE BREAK**

Tuesday July 11, 2017 (Complementary skills and fundamentals of AOPs)

- 9h00 – 9h30 **AOPs for environmental applications: an overview**
Dionissios Mantzavinos, U. Patras, Greece
- 9h30 – 10h00 **How to manage your time during your research life?**
Suresh Pillai, Institute of Technology Sligo, Ireland
- 10h00 – 10h30 **Photocatalysis: semiconductor physics**
Carlos Tavares, U. Minho, Portugal
- 10h30 – 11h00 **COFFEE BREAK**
- 11h00 – 11h30 **Fundamentals of photocatalysis applications for water detoxification, trends and limitations**
Elisenda Pulido Melián, U. Las Palmas Gran Canaria, Spain
- 11h30 – 12h00 **Photophysical mechanistic aspects of AOPs**
Antonio Arques, U. Politècnica de València, Spain
- 12h00 – 12h30 **Simulation and design of photoreactors**
Javier Marugan, U. Rey Juan Carlos, Spain
- 12h30 – 14h00 **LUNCH BREAK**
- 14h00 – 14h30 **Catalytic wet peroxide oxidation (CWPO): potential applications and challenges**
Juan José Rodríguez, U. Autónoma de Madrid, Spain
- 14h30 – 15h00 **Catalytic wet air oxidation (CWAO): process and catalyst developments**
Helder T. Gomes, IPB, Bragança, Portugal
- 15h00 – 15h30 **Applications of raceway pond reactors for solar photo-Fenton: principles and uses**
J.A. Sánchez Pérez, U. Almería, Spain
- 15h30 – 16h00 **Electrochemical advanced oxidation processes**
Manuel A. Rodrigo Rodríguez, U. Castilla la Mancha, Spain
- 16h00 – 16h30 **COFFEE BREAK & POSTERS**
- 16h30 – 17h00 **Assessment of ElectroFenton technology for water and soil restoration**
M. Pazos Currás and A. Sanroman, U. Vigo, Spain
- 17h00 – 17h30 **Chromatography-mass spectrometry analysis of polar chemicals in water and transformation products elucidation**
José Benito Quintana, U. Santiago Compostela, Spain
- 17h30 – 18h00 **General discussion about AOPs**
Montserrat Pérez-Moya, U. Politècnica de Catalunya, Spain

Wednesday July 12, 2017 (CECs and antibiotic resistance control in water/wastewater)

- 9h00 – 9h20 **New and emerging challenges and opportunities in wastewater reuse: NEREUS COST Action ES1403**
- 9h20 – 10h00 **MSCA individual fellowships proposal preparation & writing “Hints & Tips” - The Evaluator's “Point of View”**
Despo Fatta-Kassinou, NIREAS-IWRC, University of Cyprus
- 10h00 – 10h30 **Treatment of CECs by solar driven AOPs**
Sixto Malato, Plataforma Solar de Almería, Spain
- 10h30 – 11h00 **COFFEE BREAK**
- 11h00 – 11h30 **Effects of AOPs on toxicity of CECs oxidation intermediates**
Idil Arslan Alaton, Istanbul Technical U., Turkey
- 11h30 – 12h00 **Antibiotic resistant bacteria as contaminants of emerging concern**
Celia Manaia, U.Católica, Portugal
- 12h00 – 12h30 **Microbial inactivation by the solar-assisted Fenton process at near-neutral pH**
Stefanos Giannakis, École Polytechnique Fédérale De Lausanne, Switzerland
- 12h30 – 14h00 **LUNCH BREAK**
- 14h00 – 14h30 **Advances in photocatalytic urban wastewater treatment for controlling antibiotic resistance spread**
Luigi Rizzo, U. Salerno, Italy
- 14h30 – 15h00 **Endocrine disrupting chemicals and emerging contaminants: new challenges and perspectives**
Miguel Santos, CIIMAR, Portugal
- 15h00 – 15h30 **Removal of CECs from urban wastewater by membrane bioreactors (MBRs)**
Pawel Krzeminski, Systems Eng. and Techn. Norwegian Inst. for Water Research (NIVA)
- 15h30 – 16h00 **Use of biochar from microware pyrolysis for removal of pharmaceuticals by filtration**
Petr Hlavínek, Technical U. Brno, Czech Republic
- 16h00 – 16h30 **COFFEE BREAK & POSTERS**
- 16h30 – 17h00 **Disinfection of WWTP secondary effluents by solar photo-Fenton process**
Ana Belén Esteban García, Plataforma Solar de Almería - CIESOL, Spain
- 17h00 – 17h30 **Ionizing radiations as efficient AO(R)P method for remediation of waters and wastewaters**
Andrea Capodaglio, U. degli Studi di Pavia, Italy
- 17h30 – 18h00 **Application of ultrasound for the degradation of organic pollutants in waters**
Ricardo A. Torres-Palma, U. Antioquia, Colombia

Thursday July 13, 2017 (Workshop on Advanced Treatment)

- 9h00 – 9h20 **Photocatalytic removal of organic pollutants and the subsequent synergic reduction of Cr⁶⁺ in aqueous solution, using sodium decatungstate photocatalysts**
Mohamed Sarakha, U. Clermont Auvergne, France
- 9h20 – 10h00 **On photocatalytic membrane reactors in water and wastewater treatment: recent experiences and perspectives**
Sylvia Mozia, U. of West Pomeranian, Poland
- 10h00 – 10h20 **Intensification of photocatalytic processes: phenomenological computational modelling**
Cíntia Soares, Federal U. Santa Catarina, Brazil
- 10h30 – 11h00 **COFFEE BREAK**
- 11h00 – 11h30 **Treatment of agro-industrial and textile wastewaters by different Fenton processes**
José Alcides Peres, U. Trás dos Montes, Portugal
- 11h30 – 12h00 **Catalytic ozonation: from powder to structured catalysts**
M. Fernando R. Pereira, FEUP, U. Porto, Portugal
- 12h00 – 12h30 **Wastewater treatment by ozonation**
Santiago Esplugas, U. Barcelona, Spain
- 12h30 – 14h00 **LUNCH BREAK**
- 14h00 – 14h30 **The Arvia Process: combining adsorption and advanced oxidation**
Mikael A. Khan, Arvia, UK
- 14h30 – 15h00 **Treatment by AOPs and reuse of Oil&Gas wastewater**
Sandra Contreras, U. Rovira i Virgili, Spain
- 15h00 – 15h30 **Novel photoreactors for photocatalytic processes: towards process Intensification**
Vítor J.P. Vilar, FEUP, U. Porto, Portugal
- 15h30 – 16h00 **From bench- to full-scale AOPs application**
Sérgio C. Silva, Adventech, Portugal

Friday July 14, 2017 (Technical-Social Event, Sponsored by Adventech)

2 nd Summer School on Environmental Applications of Advanced Oxidation Processes (AOPs) and Training School on Advanced Treatment Technologies and Contaminants of Emerging Concern (NEREUS COST Action ES1403)					
	JULY 10, MONDAY School Introduction and "Floor to PhD students"	JULY 11, TUESDAY	JULY 12, WENESDAY Contaminants of Emerging Concern and Antibiotic Resistance Control in Water/Wastewater	JULY 13, THURSDAY Workshop on Advanced Treatment	JULY 14, FRIDAY Technical-Social Event
08:00					
09:00	Registration				
09:00	Welcome and Introduction of the Summer School	AOPs for environmental applications: an overview	New and emerging challenges and opportunities in wastewater reuse: NEREUS COST Action ES1403	Photocatalytic removal organic pollutants and the subsequent synergic reduction of Cr ⁶⁺ in solution using sodium decatungstate photocatalyst	Technical-Social Event Sponsored by Adventech (& Visit to FEUP)
09:20		Dionissios Mantzavinos, U. Patras, Greece	MSCA individual fellowships proposal preparation & writing "Hints & Tips" - The Evaluator's "Point of View"	Mohamed Sarakha, U. Clermont Auvergne, France	
09:20	Publication of Research Results FEUP Library Team	How to manage your time during your research life?	Despo Fatta-Kassinou, NIREAS-IWRC, U. Cyprus	On photocatalytic membrane reactors in water and wastewater treatment: recent experiences and perspectives	
09:30		Suresh Pillai, Institute of Technology Sligo, Ireland	Treatment of CECs by solar driven AOPs	Sylwia Mozia, U. West Pomeranian, Poland	
09:40		Photocatalysis: semiconductor physics	Sixto Malato, Plataforma Solar de Almería, Spain	Intensification of photocatalytic processes: phenomenological computational modelling	
09:50		Carlos Tavares, U. Mnho, Portugal	Coffee Break	Cíntia Soares, Federal U. Santa Catarina, Brazil	
09:50		Coffee Break	Coffee Break	Coffee Break	
10:00		Coffee Break	Coffee Break	Coffee Break	
10:00	Short Oral Communications PhD students	Fundamentals of photocatalysis applications for water detoxification, trends and limitations	Effects of AOPs on toxicity of CECs oxidation intermediates	Treatment of agro-industrial and textile wastewaters by different Fenton processes	
10:10		Elisenda Pulido Melián, U. las Palmas Gran Canaria, Spain	Idil Arslan Alaton, Istanbul Technical U., Turkey	José Alcides Peres, U. Trás dos Montes, Portugal	
10:20		Photophysical mechanistic aspects of AOPs	Antibiotic resistant bacteria as contaminants of emerging concern	Catalytic ozonation: from powder to structured catalysts	
10:30		Antonio Arques, U. Politècnica de València, Spain	Celia Manaia, U. Católica, Portugal	M. Fernando R. Pereira, FEUP, U. Porto, Portugal	
10:40		Simulation and design of photoreactors	Microbial inactivation by the solar-assisted Fenton process at near-neutral pH	Wastewater treatment by ozonation	
10:50		Javier Marugan, U. Rey Juan Carlos, Spain	Stefanos Giannakis, École Polyt. Fédérale Lausanne, Switzerland	Santiago Esplugas, U. Barcelona, Spain	
11:00		Lunch Break	Lunch Break	Lunch Break	Lunch Break
11:00	Short Oral Communications PhD students	Catalytic wet peroxide oxidation (CWPO): potential applications and challenges	Advances in photocatalytic urban wastewater treatment for controlling antibiotic resistance spread	The Arvia Process: combining adsorption and advanced oxidation	
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11:20		Catalytic wet air oxidation (CWAO): process and catalyst developments	Endocrine disrupting chemicals and emerging contaminants: new challenges and perspectives	Treatment by AOPs and reuse of Oil&Gas wastewater	
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11:40		Applications of raceway pond reactors for solar photo-Fenton: principles and uses	Removal of CECs from urban wastewater by membrane bioreactors (MBRs)	Novel photoreactors for photocatalytic processes: towards process Intensification	
11:50		J.A. Sánchez Pérez, U. Almería, Spain	Pawel Krzeminski, Syst. Eng.Tech. Norwegian Inst. Water Res.	Vítor Vilar, FEUP, U. Porto, Portugal	
12:00		How to Get your Article Published: An Editor Perspective	Electrochemical advanced oxidation processes	Use of biochar from microwave pyrolysis for removal of pharmaceuticals by filtration	From bench- to full-scale AOPs application
12:20	Gianluca Li Puma	Manuel A. Rodrigo Rodrigo, U. Castilla la Mancha, Spain	Petr Hlavínek, Technical U. Brno, Czech Republic	Sergio C. Silva, Adventech, Portugal	
12:30	Loughborough University, UK	Coffee Break & Posters	Coffee Break & Posters		
12:30	Editor, Journal of Hazardous Materials (Elsevier)	Assessment of ElectroFenton technology for water and soil restoration	Disinfection of WWTP secondary effluents by solar photo-Fenton process		
12:40	Poster session & Coffee Break	M. Pazos Currás and A. Sanroman, U. Vigo, Spain	Ana B. E. García, Plataforma Solar de Almería - CIESOL, Spain		
12:50		Chromatography-mass spectrometry analysis of polar chemicals in water and transformation products elucidation	Ionizing radiations as efficient AO(R)P method for remediation of waters and wastewaters		
13:00		José Benito Quintana, U. Santiago Compostela, Spain	Andrea Capodaglio, U. degli Studi di Pavia, Italy		
13:10		General discussion about AOPs	Application of ultrasound for the degradation of organic pollutants in waters		
13:20		Montserrat Pérez-Moya, U. Politècnica de Catalunya, Spain	Ricardo A. Torres-Palma, U. Antioquia, Colombia		
13:30					

