

PhD Candidate Profile

Name:

Pedro Henrique Presumido

Research Group:

Thermodynamics and Environment

Research Centre:

LSRE - Laboratory of Separation and Reaction Engineering
and LCM - Laboratory of Catalysis and Materials

Department/School(s):

Chemical Engineering Department

College:

Faculty of Engineering University of Porto

Supervisor(s):

Dr. Vítor Jorge Pais Vilar

Funding body:

Fundação para a Ciência e a Tecnologia (FCT)

Area (field) of study:

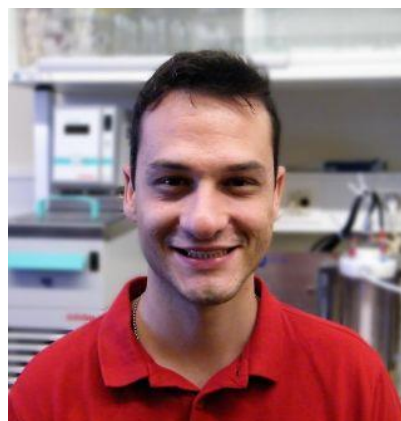
Advanced oxidation processes

Thesis Title:

Disruptive Photo-Catalytic/Electrocatalytic Membrane Reactors for Tertiary Treatment of Urban Wastewaters

Abstract:

Contaminants of emergent concern (CECs) in aquatic ecosystems entail a potential risk for human health and the environment. Although there are no discharge limits for most CECs, recently, the first watch list of 10 substances/groups of substances for European Union-wide monitoring was reported in Decision 2015/495/EU. Since relatively little is known about the removal of most of those CECs, particularly regarding realistic concentrations, the aim of this project is to develop innovative photo-catalytic/electrocatalytic membrane reactors for the elimination of 17 CECs enlisted in the first watch list, towards wastewater reuse. Nano-enhanced membranes with customized properties will be developed and further inserted in two disruptive reactors configurations. Another goal is to develop a simple, rapid and inexpensive method to monitor the quality of treated wastewater. This new indirect method will include new analytical approaches using size exclusion chromatography (molecular size distribution), as well as new ecotoxicological and predictive tools.





PhD Candidate Profile

Collaborations:

N/A

Publications:

Presentations: