## E:\Pello\PhD\Personal Documents\Picture Pello\tsn_muniozgurenpa_MThumb.jpgName:

Pello Alfonso Muniozguren

## Research Group (if relevant):

N/A

## Research Centre (if relevant):

N/A

## Department/School(s) (if relevant):

Chemical and Process Engineering

## College:

University of Surrey, United Kingdom

## Supervisor(s):

Dr. Judy Lee; Dr. Vítor J.P. Vilar

## Funding body:

N/A

## Area (field) of study:

Advanced Oxidation Processes for Industrial Wastewater Treatment

## Thesis Title:

Advanced Oxidation Processes for Industrial Wastewater Treatment

## Abstract:

Wastewater treatment is becoming a worldwide concern due to more and stricter regulations and the need of an increasing amount of water for the exponentially increasing population. There are many processes currently in use for urban and industrial wastewater treatment based on wastewater quality to be treated and regulatory limits. Processes involving oxidation of organic compounds (also certain inorganic pollutants) through hydroxyl radicals (OH) are named Advanced Oxidation Processes (AOPs). Ozone, Ultraviolet light (UV, with and without catalysts), ultrasound (US), as well as a combination of those are some of the AOPs currently in use and under investigation. These processes have been proven to be efficient in reducing organic indicators, as well as achieving a complete inactivation of microorganisms in a short period of time, improving effluent quality and reducing treatment costs. However, there are still some concerns in the use of AOPs for abattoir and industrial wastewater treatment, due to the high organic load and bacterial contamination of the treated water, as well as operational and maintenance problems, changes in legislation and high ozone/UV/ultrasound requirements. Due to the vast and increasing amount of wastewater produced, the focus of my PhD project is to assess the treatment potential of single and combined AOPs to treat heavily polluted and highly variable quality effluents in an efficient and cost effective manner.

## Collaborations:

# Laboratory of Separation and Reaction Engineering - Laboratory of Catalysis and Materials (LSRE-LCM), University of Porto.

Chemical Engineering Department, Chemical Engineering in Energy and Environment Research Group, Faculty of Science and Technology, University of the Basque Country.

## Publications:

P. Alfonso-Muniozguren, J. Lee, M. Bussemaker, R. Chadeesingh, C. Jones, D. Oakley, D. Saroj, A combined activated sludge-filtration-ozonation process for abattoir wastewater treatment, Journal of Water Process Engineering, 25 (2018) 157-163.

## Presentations:

13th International Chemical and Biological Engineering Conference (CHEMPOR 2018). Aveiro, Portugal, 2-4 October 2018.

20th International Conference on Water Pollution and Treatment (ICWPT 2018). London, United Kingdom, 14-15 May 2018.

16th Meeting of the European Society of Sonochemistry (ESS16). Besancon, France, 15-19 April 2018.