

Name:

Fabrício Eduardo Bortot Coelho

Research Group (if relevant):

AQUALity Project (H2020-MSCA-ITN-2017; Project N. 765860)

Research Centre (if relevant):

NIS (Nanostructured Interfaces and surfaces)

Department/School(s) (if relevant):

Department of Chemistry

College:

University of Torino, Italy

Supervisor(s):

Dr. Giuliana Manacca

Funding body:

European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 765860.

Area (field) of study:

Tertiary water treatments, Advanced Oxidation Processes, Photocatalysis

Thesis Title:

Multifunctional Membrane Materials for Separation and Abatement of Contaminants of Emerging Concern from drinking waters and wastewater.

Abstract:

The main objective is the synthesis and characterization of novel functional materials for drinking waters and wastewater treatments. The expected results are: (i) synthesis of oxidic thermos- or photoactive materials (both layers and particles) with controlled dimension and porosity for membrane technology applications; (ii) to obtain hybrid materials with tunable size to optimize membrane perm-selectivity for CECs filtration and characterize them; (iii) evaluation of the their effectiveness in the removal of CECs from drinking waters and wastewater, (vi) membrane surface regeneration by sun-exposure or thermal cleaning. Planned secondments: Liqtech: to test functional materials for membrane technologies on industrial wastewater effluents and develop understanding on the functioning of the new membrane in real wastewater cleaning and thus to test their perm-selectivity and resistance to fouling; PSA/UPV: to test photochemical processes for regeneration of membrane materials and assessment of novel material wastewater treatments in solar pilot plants.

PhD Candidate Profile

Collaborations:

University of Torino: Dr. Cristina Maganini, Dr. Paola Calza

Liqtech (Denmark): Dr. Victor Manuel Candelario Leal

Aalborg University (Denmark): Dr. Vittorio Boffa

PSA (Spain): Dr. Isabel Oller, Dr. Sixto Malato

Presentations:

2019 Innovative Catalysis and Sustainability – Bardonecchia – Italy, 7-11 January

- Development of a Ce-doped ZrO_2 Photocatalyst for the Degradation of Humic Acid

2018 10th European meeting on Solar Chemistry and Photocatalysis: Environmental Applications (SPEA10) – Spain, 4-8 June.

- Metal oxide photocatalysts supported on reduced graphene oxide self-standing structures: a new perspective for wastewater treatment