An early stage researcher (ESR) position is available at Universidad Rey Juan Carlos and ProPhotonix as part of the Marie Curie Industrial Doctorate project "REWATERGY"

PhD student (3 years). ***ESR 5 – UV LED prototype for the photoelectrocatalytic generation of oxidising species for water treatment.***

REWATERGY is a Marie Curie European Industrial Doctorate (EID) training network funded by the European Commission within the Horizon 2020 research and innovation action. The REWATERGY programme aims to develop an academic-industrial partnership within the water-energy nexus.
Three research objectives set the foundation of this ambitious programme:

- Enhance the energy recovery from wastewater streams inspired by the *circular economy* concept.
- Improve the *energy efficiency* of water disinfection and removal of contaminants of emerging concern.
- Increase the *resilience* of distributed household safe drinking water systems addressing potential health and safety challenges.

The REWATERGY network comprises 3 universities (Universidad Rey Juan Carlos, Spain; University of Cambridge, UK; and Ulster University, UK) and 3 companies (Deft IMP, Netherlands, ProPhotonix, Ireland; and FCC Aqualia, Spain). The consortium is recruiting 8 highly motivated PhD candidates, providing inter-sectoral training, which will qualify them for a career in academia and/or industry. Each ESR will crucially gain inter-sectoral experience in an individual ESR research project, with the main working period (36 months) of the ESR equally split into an academic and an industrial part of 18 months at 2 different countries.

This PhD student position will be hired by:

- ProPhotonix (Cork, Ireland). 18 months (1st October 2019 – 31st March 2021).
- Universidad Rey Juan Carlos (Madrid, Spain). 18 months (1st April 2021 – 30th September 2022).

Description of the work:

This PhD student position offers an exciting and innovative research project for the design, construction and testing of UV-A LED driven photochemical, photocatalytic and photoelectrocatalytic systems for disinfection processes in water treatment. In ProPhotonix , the student will develop and optimise UV-A LED based emitters for the design of a final novel prototype leading to the photogeneration of oxidising species with disinfection purposes. At Universidad Rey Juan Carlos, different tasks will be carried out: the development of radiative transfer modelling to be applied in the optimisation of photochemical reactors and photoelectrochemical cells; testing UV-A LED systems at lab scale to evaluate the performance of photocatalytic materials, photoanodes, and photo oxidation processes for disinfection purposes in water treatment plants; the final analysis of the selectetd prototype in terms of energy, environmental and economic costs. The ESR will be trained on photochemical processes, photo reactor design, together with water quality and bacterial quantification.

Requirements:

- Candidate should be in the first four years of his/her research career. He/she should not have a doctoral degree and fulfil the eligibility criteria and mobility rule (see below).
- A Master degree in mechanical engineering, electronics engineering, chemical engineering, physics or other fields relevant to project activities.
- Experience with CAD packages (preferably Solid Edge) along with knowledge of standard machining/manufacturing processes.
- Additional knowledge or experience in thermal analysis, optics, PCB design, microelectronic packaging, electronics or machine vision would be an advantage.
- Problem solving skills and ability to work both as part of the team, and independently, coupled with excellent communication and organisational skills.
- Fluency in oral and written English.
- Availability to travel for training events and research secondments.
- The standing needed to meet the graduate admissions entrance requirements of Universidad Rey Juan Carlos International Doctoral School, as the successful candidate will be expected to formally apply for admission: https://www.urjc.es/en/international/internatinal-students/1219-international-doctoral

ELIGIBILITY CRITERIA: Recruiting is in accordance with the European rules for Marie Curie Initial Training Networks. Early-stage researchers (ESR) can be of any nationality. They must be, at the time of recruitment by the host organisation, in the first four years (full-time equivalent) of their research careers and have not yet been awarded a doctoral degree. The research career starts after the degree that enables a student to proceed with a PhD (usually, the Master degree).

MOBILITY RULE: At the time of the recruitment by the first host institution, the ESRs must not have resided or carried out their main activity (work, studies, etc.) in the country of their first host institution for more than 12 months in the 3 years immediately before the recruitment date. Short stays such as holidays and/or compulsory national service are not taken into account.

Benefits

- 3 years full time employment contract (starting 1st October 2019) corresponding to two 18 months contracts, one with each host.
- Attractive salary according to the living standards of the hosting country (Ireland gross salary 3947.83 EUR/month including mobility allowance, taxation of 20-40% depending on individual and familiar circumstances; Spain gross salary 2760 EUR/month including mobility allowance, taxation of 15-18% depending on individual and familiar circumstances). Candidates should get information about the tax requirements associated to each country and their personal circumstances.
- Work in a dynamic and international research group of Chemical and Environmental Engineering – see details on the website: http://www.giqa.es/index_english.php
- Work in an innovative company: https://www.prophotonix.com
- Participation in an innovative PhD training program.
- Possibility to collaborate with international research groups engaged in the project.

How to apply

Step 1: Send your complete application before 31st March (first phase) or 30th June (second phase) filling this form:

http://rewatergy.eu/esr-application-form/

A single pdf file needs to be submitted including:

- a cover letter, stating your research motivation and interests; including relevant background (max 1 A4 page)
- at least 2 referees (including name, position and email address) (max 1 A4 page)
- CV, including academic background, previous industrial and/or research experience (max 2 A4 pages).
- Degree transcripts.
- English language qualification certificates

Step 2: After interview and only if your application is accepted, you will need to formally apply to a position at Universidad Rey Juan Carlos and its International Doctoral School.

Contact:

info@rewatergy.eu