H2020 / Marie Skłodowska-Curie Actions. European Innovative Training Network “Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY), Grant number 765860

OPEN CALL FOR PhD positions

A call for 15 PhD positions is open within the context of the recently granted European Innovative Training Network project “Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY), inside a wide consortium involving 11 academic institutions and 7 non-academic ones. Collaboration within the network is strongly encouraged.

The 15 PhD positions as Early Stage Researchers (ESR1 to ESR15) are open to applicants of all nationalities, with the limitation that at the time of recruitment, researchers must not have resided or carried out their main activity (work and/or studies) in the country of enrolment for more than 12 months in the 3 years immediately prior to the date of enrolment.

The applicants must be in the first four years of his/her research career calculated from the date of obtaining the master degree and have not yet been awarded with a doctoral degree at the time of recruitment.

All nodes of the AQUALITY network participate in the ESRs training, feeding upon collaborations through the network. The position includes short stays (secondments) in some of the world leading research centers within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

Eligibility criteria.


Required documents.

Application form (Annex A), a copy of the passport, a full CV, a motivation letter including a description of previous research experiences. Only documents in English will be accepted.

Applicants should submit the documentation exclusively via e-mail to aquality-etn@unito.it by 10 December 2017 at 23 pm (GMT).

Applications failing to include the requested documentation, where the candidates do not meet the eligibility criteria or which do not indicate the preferred projects WILL NOT be considered in this competition.

Benefits
The salary consists of the gross Monthly Living Allowance of 3,110 EUR per month pondered by the EU correction coefficient (specific for the countries where the enrolling Institutions are located, available at [http://ec.europa.eu/research/participants/data/ref/h2020/other/mga/tmpl/h2020-annex2a-tmpl-estim-budget_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/other/mga/tmpl/h2020-annex2a-tmpl-estim-budget_en.pdf)); in addition, a Mobility Allowance of 600 EUR per month will be paid, and also possibly another 500 EUR per month of Family Allowance depending on marital status. A family allowance of €500 per month will be paid should the researcher have family, regardless of whether the family will move with the researcher or not. In this context, family is defined as persons linked to the researcher by (i) marriage, or (ii) a relationship with equivalent status to a marriage recognised by the national or relevant regional legislation of the country where this relationship was formalised; or (iii) dependent children who are actually being maintained by the researcher.

The ESR salary is subject to local tax, social benefit and other deductions following national regulations.

Fulltime employments as PhD students are offered for 3 years. The starting date of the contract is negotiable but ideally it would be February, 1st 2018.

The PhD students will be employed with full social security coverage and all benefits in accordance with the Marie Sklodowska-Curie ITN fellowship regulations of the European Union.

**Selection process:**

Selection of candidates will be performed via interview (telephone and/or Skype). In the case when the amount of candidates for a position exceeds 10, shortlisted candidates, selected on the basis of the coherence of their CV with the chosen research project(s), will be invited for interview and positions will be offered to candidates following approval by the AQUALITY committee.
OFFERED POSITIONS

ESR-1

- **ORGANISATION/COMPANY**: UNIPMN – University of Piemonte Orientale
- **RESEARCH FIELD**: Analytical Chemistry
- **RESEARCHER PROFILE**: Early Stage Researcher (ESR)
- **APPLICATION DEADLINE**: 10/12/2017 23:00 - Europe/Brussels
- **LOCATION**: Italy › Alessandria
- **TYPE OF CONTRACT**: Temporary
- **JOB STATUS**: Full-time
- **HOURS PER WEEK**: 40
- **OFFER STARTING DATE**: 01/02/2018
- **EU RESEARCH FRAMEWORK PROGRAMME**: H2020 / Marie Skłodowska-Curie Actions / Innovative Training Networks
- **MARIE CURIE GRANT AGREEMENT NUMBER**: 765860

We announce one PhD position under the supervision of the Analytical Chemistry and Chemometrics Group at the Department of Sciences and Technological Innovation, University of Piemonte Orientale in Alessandria (Italy) within the context of the recently granted European Innovative Training Network “Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY) with 15 PhD students working in 11 academic institutions and collaborating with 9 companies. Collaboration within the network is strongly encouraged.

All nodes of the AQUALITY network participate in the training, feeding upon collaborations through the network. The position includes short stays in some of the world leading research centers within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

**PROJECT DESCRIPTION**

The PhD project is devoted to the determination of emerging contaminants (CECs) and their degradation products (DPs) by state-of-the-art mass spectrometry (MS) techniques guaranteeing the achievement of a high resolution and very low detection limits. The project will be articulated in: 1) development, optimization and application to real samples of pre-treatment methods to surface waters, wastewaters pre- and post- treatment and waters for human consumption, to extract and pre-concentrate the analytes; 2) development, optimization and validation of LC-HR-MS/MS and GC-MS methods for the determination of CECs and their DPs in model solutions, also by experimental design techniques and multivariate statistics, and application to real samples; 3) robustness studies to establish System Suitability Limits for the procedures developed for the removal of CECs and DPs.
In coordination with colleagues of collaborating groups of Aquality project, key points to be studied in this project will be: the application of analytical protocols to photocatalytic processes (at KTU, Turkey, 2 months); to characterize different water samples (at FACSA, Spain, 3 months); to develop GC-based analytical methods for analysis of CECs and DPs (at VBM, Denmark, 3 months); to optimize analytical methods with the aid of experimental design and response surface methodology (at UOI, Greece, 2 months).

**Requirements:**

Offer Requirements

**REQUIRED EDUCATION LEVEL**
Chemistry: Master Degree or equivalent
Chemical Engineering: Master Degree or equivalent

**REQUIRED LANGUAGES**
ENGLISH: Excellent

**Skills/Qualifications**
Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills. Skills in multivariate data analysis and experimental design techniques are highly appreciated, together with previous experience in analytical chemistry, in particular chromatographic and MS methods development.

**Specific Requirements**

**REQUIREMENTS**

We are looking for one highly motivated PhD candidate with strong interest in analytical chemistry research, in particular in high resolution mass spectrometry applications and HPLC method development. The PhD candidate is required to have a master degree in Chemistry or closely related field. Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills. The position is open to applicants from around the world, with the limitation that at the time of recruitment by UNIPMN, researchers must not have resided or carried out their main activity (work and/or studies) in Spain for more than 12 months in the 3 years immediately prior to the reference date.

The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience.
We announce the PhD position “Removal of contaminants of emerging concern (CECs) using photoactive membranes; assessment of degradation paths and mechanism by means of high resolution analytical techniques.”, under the supervision of Prof. Alessandra Bianco Prevot at the Chemistry Department of the Università degli Studi di Torino (www.unito-it, http://www.chimica.unito.it/do/home.pl) in Torino (Italy).

**PROJECT DESCRIPTION**

The PhD project focuses on the testing and optimization of the performances of newly developed membranes for the removal/photodegradation of CECs from water for human consumption. The in-depth comprehension of both degradation mechanisms and role of the involved species, together with the testing of membrane performances will allow: i) to identify the most suitable materials and processes for the CECs abatement; ii) to assess the ecotoxicological impact of CECs and their DPs in aqueous systems; iii) to get insight the mechanism of CECs rejection/photodegradation contributing to assess the structure/properties relationship and the effect of experimental conditions.

To achieve these objectives the ESR will be trained on: i) acquiring analytical skills to identify CECs (and their DPs and related toxicity) in different kind of waters by means of HPLC-MS; ii) isolating and characterizing key DPs via NMR and IR; iii) testing and optimizing the performances of newly developed membranes for the removal/photodegradation of CECs from water for human consumption; iv) elucidating the CECs photodegradation mechanisms and understanding the role of the major reactive species generated during the photodegradation process.

To train the ESR and enhance his expertise with regard to the PhD topic, the following secondments are planned: (i) Clermont-Ferrand (France) CNRS, Tutor Dr. M. Brigante (from M12 to M15) (4 months): identification of reactive species and mechanistic studies, (ii) Aalborg University (Danemark), Tutor Dr. Roslev, (M21) (1 months): methods for evaluating the toxicity.
of CECs and of their by-products (iii) LiqTech, (Danemark), Tutor Dr. Marcher, (from M32 to M33) (2 months): to study membrane processes and to help in developing a CECs analysis protocol with in-house instruments. (iv) NIVA (Norway), Tutor Dr. C. Escudero, (from M40 to M42) (3 months) to study green remediation technologies and to assess the photooxidation mechanism.

REQUIRED EDUCATION LEVEL
Candidates must have accomplished one of the following University carrier:
Chemistry: Master and/or Bachelor Degree or equivalent
Environmental Chemistry: Master and/or Bachelor Degree or equivalent
Chemical Engineering: Master and/or Bachelor Degree or equivalent

REQUIRED LANGUAGES
ENGLISH, Excellent

SKILLS/QUALIFICATIONS
Candidates are expected to be fluid in English (both oral and written), good in scientific writing and results presentation.

SPECIFIC REQUIREMENTS
We are looking for a highly motivated PhD candidate with strong interest in analytic/environmental chemistry and water remediation treatment.

The PhD candidate is required to have a knowledge on main Chromatographic techniques, with a special emphasis on HPLC-MS. Master or bachelor thesis on one or more of the following topics will be highly evaluated: polluted water treatments, organic pollutants degradation, identification of abiotic degradation by-products, development of HPLC-MS methods, advanced oxidation processes, chemometrics.

The candidate must demonstrate her/his excellence in her/his previous academic experience.
The Department of Chemistry of the University of Ioannina, Greece, (http://www.uoi.gr/en) is seeking a PhD within the context of the recently granted European Innovative Training Network “Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY). The PhD student will be a part of an international team carrying out research consisting of 11 academic institutions and 9 companies (15 PhD students involved). Collaboration within the network is strongly encouraged.

All nodes of the AQUALITY network participate in the training, feeding upon collaborations through the network. The position includes short stays in some of the world leading research centers within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

**PROJECT DESCRIPTION**

The PhD project focuses on the development of green analytical methods for the determination of contaminants of emerging concern (CECs), as well as, on the assessment of the significance of photochemical reactions to the abiotic transformation of CECs via direct and/or indirect pathways in natural waters.

In coordination with colleagues of collaborating groups of AQUALITY project the key points of the PhD project is to provide with new knowledge the involvement of environmentally friendly analytical chemistry practices for the determination of CECs as well as their transformation products. For this reason several solid and liquid-phase micro-extraction techniques will be evaluated and optimized with the employment of chemometric tools. Moreover, the photochemical fate of selected contaminants -in terms of degradation kinetics, intermediate transformation products, and toxicity evaluation-, will be investigated under artificial and natural solar light, at natural waters with different composition. In view of that, as a case study, the significance of dissolved organic matter-isolated from Pamvotis Lake will be assessed with respect to contaminants photochemical degradation.
ADDITIONAL INFORMATION

Location

University of Ioannina, Department of Chemistry, Ioannina, Greece

Supervisor: Vasilios Sakkas (vsakkas@cc.uoi.gr).

REQUIREMENTS:

Offer Requirements

REQUIRED EDUCATION LEVEL
Chemistry: Master Degree or equivalent
Materials or Environmental or Chemistry Engineering: Master Degree or equivalent

REQUIRED LANGUAGES
ENGLISH: fluency in English (at least B1)

Skills/Qualifications

We are looking for one highly motivated PhD candidate with strong interest in environmental analytical chemistry and technology. The PhD candidate is required to have a master degree in Chemistry, Chemical Engineering, Environmental Engineering, Materials Engineering, or closely related field. Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills. The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience.

Specific Requirements

Due to the mobility requirement of the European Commission for ITN projects:

- The applicant should be in the first four years of his/her research career and have not yet been awarded with a doctoral degree at the time of recruitment.

- The position is open to applicants from around the world, with the limitation that at the time of recruitment by UOI, researchers must not have resided or carried out their main activity (work and/or studies) in Greece for more than 12 months in the 3 years immediately prior to the reference date.
We announce one PhD position under the supervision of the Laboratory of Molecular Chemistry in Ecole Polytechnique, Palaiseau (France) within the context of the recently granted European Innovative Training Network “Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY) with 15 PhD students working in 11 academic institutions and collaborating with 9 companies. Collaboration within the network is strongly encouraged.

All nodes of the AQUALITY network participate in the training, feeding upon collaborations through the network. The position includes short stays in some of the world leading research centers within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

PROJECT DESCRIPTION

The PhD project focuses on the structural elucidation of photodegradation products based on mass spectrometry approaches. Mass spectra interpretation is the heart of the research of few experts in the world because it requires specific knowledge (particular chemistry of gaseous ions), time, and a healthy dose of experience in some complex cases! Whatever the way degradation occurs (photolysis, chlorination, ozonation, thermal decomposition,…), a classical approach for products characterization consists in modelling the process under laboratory conditions, first in a simple model (pure water for example), next in models more and more complexes (water with dissolved organic matter and suspended particulates, for instance). This strategy has proved its efficiency but it finds limitations in terms of time and analytical costs. Furthermore, as complex as it may be, the model never fully matches the environmental reality.

The PhD project aims at testing a new approach currently in development at the LCM, which combines acquisition of ultra-high resolution mass spectra of environmental samples using FT-
ICR (Fourier Transform Ion Cyclotron Resonance) mass spectrometry and mathematical treatment of big data, to detect small but significant variations when comparing mass spectra of real samples subject to intrinsic variations. This approach will not replace the “classic one” but the mathematical approach should allow removing the operator subjectivity in data interpretation. Of course structural elucidation by the analyst will remain necessary but the software in development - by pointing out the parts of spectra that are worthy of detailed study - should offer an important gain in time, reliability and performances.

In coordination with colleagues of collaborating groups of Aquality project, we will study the photodegradation of some pollutants of major concern (selected in consultation with our partners) and test the improvements and limitations, if any, that this new holistic approach may bring in the detection and characterization of emerging pollutants resulting from the photolysis of pesticides, drugs, etc.

Additional Information

Web site of the LCM: https://portail.polytechnique.edu/lcm/fr

Requirements:

REQUIRED EDUCATION LEVEL
- Analytical Chemistry: Master Degree or equivalent
- Chemistry: Master Degree or equivalent
- Physical Chemistry: Master Degree or equivalent
- Chemical Engineering: Master Degree or equivalent

REQUIRED LANGUAGES
- ENGLISH: Excellent

Skills/Qualifications

Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills.

Specific Requirements

We are looking for one highly motivated PhD candidate with strong interest in analytical chemistry and environmental research. The PhD candidate is required to have a master degree in Analytical Chemistry, Chemistry, Physical Chemistry, Chemical Engineering, or closely related field. Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills. The position is open to applicants from around the world, with the limitation that at the time of recruitment by LCM, researchers must not have resided or carried out their main activity (work and/or studies) in France for more than 12 months in the 3 years immediately prior to the reference date.
The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience.
We announce one PhD position under the supervision of the Environmental Microbiology and Toxicology group in the Section of Biology and Environmental Science, Department of Chemistry and Bioscience, Aalborg University, Denmark. The PhD position is within the context of the recently granted European Innovative Training Network “Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY) with 15 PhD students working in 11 academic institutions and collaborating with 9 companies. Collaboration within the network is strongly encouraged.

All nodes of the AQUALITY network participate in the training, feeding upon collaborations through the network. The position includes short stays in some of the world leading research centers within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

PROJECT DESCRIPTION

The PhD project focuses on development and evaluation of bioanalytical tools for determining bioavailability and adverse effects of contaminants of emerging concern (micropollutants). The project will include bioassays with different biological endpoints to monitor contaminants and contaminant mixtures. Target contaminants will include selected micropollutants (e.g., pesticides, pharmaceuticals, personal care products, endocrine disruptors). In vivo and in vitro microbial and invertebrate bioassays will be combined with luminescence and fluorescence measurements for assessment of acute and chronic effects. Bioanalytical tools will be combined with chemical analytical techniques, and radiolabelled chemicals (14C) can be included to determine fate of micropollutants.

The overall goal is to develop a toolbox for assessing ecological impacts of complex mixtures, and for evaluating effects of advanced water treatment technologies developed by other project partners for removal of toxic and endocrine disrupting chemicals.
Additional Information

Web site for additional job details: http://www.vacancies.aau.dk/phd-positions/

You may also obtain further information from Associate Professor Peter Roslev concerning the specific aspects of this PhD position (pr@bio.aau.dk).

Note that there is another available PhD position at Aalborg University, Denmark within the same network (AQUALITY) focusing on modelling selectivity and fouling of hybrid membranes-advanced oxidation systems.

REQUIREMENTS

We are looking for one highly motivated PhD candidate with strong interest in toxicology, micropollutants and water treatment research. The PhD candidate is required to have a master degree in Biology, Biotechnology, Chemistry, Environmental Science or closely related field. Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills. The position is open to applicants from around the world, with the limitation that at the time of recruitment by Aalborg University, researchers must not have resided or carried out their main activity (work and/or studies) in Denmark for more than 12 months in the 3 years immediately prior to the reference date.

The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience.
We announce the PhD position “Development of analytical methods using advanced mass spectrometry (including LC-MS-MS, IC-MS-MS, GC-MS) techniques for contaminants of emerging concern (CECs) detection and assessment in surface and drinking samples (including toxicological screening) under the supervision of dott. Rita Binetti at SMAT Research Centre laboratories (www.smatorino) in Torino (Italy).

**PROJECT DESCRIPTION**

The PhD project focuses on the identification and assessment of contaminants of emerging concern (CECs) using advanced mass spectrometry including LC-MS-MS, IC-MS-MS, GC-MS. The successful candidate will develop analytical methods for screening of known and unknown micropollutants in water and will carry out the application of these methods to field and experimental samples (spring, surface, treated, drinking and waste water samples). The goals of the project are: 1) to improve the understanding of the pollutants’ sources and water treatment transformation fate, 2) the comparison of the pollutants removal capability of the new hybrid green technologies (see other PhD positions), 3) the evaluation by comparison of the new and conventional treatments by-products.

The “effect based approach” is part of the project therefore the toxic effect of CECs using different organisms will be performed.

To achieve these objectives the ESR will be trained on: i) acquiring analytical skills to identify CECs (and their by-products and related toxicity) in different water matrix by means of chromatographic techniques equipped with mass detection; ii) identifying known and unknown by-products; iii) evaluation of the performance of water treatments iv) adoption of techniques relevant for assessing biological impacts of CECs

To train the ESR and enhance his expertise with regard to the PhD topic, the following secondments are planned:
(i) Aalborg University (Denmark), Tutor Dr. C. A. Quist-Jensen (from M20 to M23, 4 months): methods for evaluating the toxicity of the CECs degradation by-products; (ii) Valencia University Tutor Prof. R. Vicente (from M30 to M32, 3 months): treatment of real effluents by solar photochemical processes to analyze the fate of EPs and formation of potential by-products; (iii) Plataforma Solar de Almeria, Tutor Dr. S. Malato (from M37 to M39, 3 months): monitoring and detection of CECs in treated and un-treated wastewater effluents by NF/AOP.

**REQUIRED EDUCATION LEVEL**
Candidates must have accomplished one of the following University carrier:
Chemistry, Environmental Chemistry: Master Degree or equivalent

**REQUIRED LANGUAGES.**
ENGLISH, Excellent

**SKILLS/QUALIFICATIONS**
Candidates are expected to be fluid in English (both oral and written), good in scientific writing and results presentation.

**SPECIFIC REQUIREMENTS**
We are looking for a highly motivated PhD candidate with strong interest in analytic/environmental chemistry and water remediation treatment.

The PhD candidate is required to have a knowledge on main Chromatographic techniques, with a special emphasis on HPLC-MS, multivariate statistical analysis, toxicological chemistry. Master or bachelor thesis on one or more of the following topics will be highly evaluated: polluted water treatments, identification of by-products degradation, development of HPLC-MS methods, chemometrics.

The candidate must demonstrate her/his excellence in her/his previous academic experience.
We announce one PhD position under the supervision of Prof. Miguel A. Miranda and Dr. M Luisa Marin, faculty members of the Universitat Politècnica de València (UPV) and also researchers of the Organic and Biological Photochemistry group at the Instituto de Tecnología Química (ITQ, www.itq.upv-csic.es) in Valencia (Spain).

The PhD will be developed within the context of the recently granted European Innovative Training Network “Interdisciplinar cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY) with 15 PhD students working in 11 academic institutions and collaborating with 9 companies. Collaboration within the network is strongly encouraged.

All nodes of the AQUALITY network participate in the training, feeding upon collaborations through the network. The position includes short stays in some of the world leading research centers within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

**PROJECT DESCRIPTION**

The PhD project will be part of the work package leading with developing sun-driven Advanced Oxidation Processes (AOPs) for the enhanced removal of contaminants of emerging concern (CECs). The title of the PhD project is: “Novel mechanistic insights on the photoredox degradation of CECs using organic photocatalysts”. More specifically it will focus on the mechanistic aspects of photocatalytic reduction of micropollutants, based on steady-state and time-resolved experiments. The specific objectives are: i) to assess the involved reaction pathways when using organic photocatalysts by means of photophysical techniques, and ii) to evaluate the role of other parameters such as coloured natural organic matter, presence of
anions or heterogeneization of the photocatalysts in the efficiency of the photocatalytic removal.

The candidate will develop interdisciplinary skills on photochemistry, environmental and analytical chemistry and wastewater treatments. At the end of the contract he/she will specifically be well-trained on photophysical techniques applied to the mechanistic understanding of photooxidative and photoreductive degradation of CECs: detection of short-lived excited states and reactive intermediates using time-resolved spectroscopic methods and analysis of fast reaction kinetics.

Requirements:

Offer Requirements

REQUIRED EDUCATION LEVEL
Chemistry: Master Degree or equivalent
Chemical Engineering: Master Degree or equivalent
Environmental Engineering: Master Degree or equivalent

REQUIRED LANGUAGES
ENGLISH: Excellent

Skills/Qualifications

Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills.

Specific Requirements

REQUIREMENTS

We are looking for one highly motivated PhD candidate with strong interest in environmental and water treatment research. The PhD candidate is required to have a master degree in Chemistry, Chemical Engineering, Environmental Engineering, Bioengineering, or closely related field. Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills. The position is open to applicants from around the world, with the limitation that at the time of recruitment by UPV, researchers must not have resided or carried out their main activity (work and/or studies) in Spain for more than 12 months in the 3 years immediately prior to the reference date.

The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience.
We announce one PhD position under the supervision of the Photocatalysis Research Group at Karadeniz Technical University, Faculty of Science, Chemistry Department (www.ktu.edu.tr) in Trabzon (Turkey) within the context of the recently granted European Innovative Training Network “Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY) with 15 PhD students working in 11 academic institutions and collaborating with 9 companies. Collaboration within the network is strongly encouraged.

All nodes of the AQUALITY network participate in the training, feeding upon collaborations through the network. The position includes short stays in some of the world leading research centers and within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

PROJECT DESCRIPTION

The PhD project focuses on the capability of several novel advanced oxidation processes (AOPs) for the treatment of drinking water. Aquality project is focused, among other, on the development of innovative hybrid organic-inorganic systems, consisting of dye-sensitized photocatalysts (nanodusts and thin film) and renewable photocatalysts. Also, photocatalytic TiO₂, ZnO and TiO₂/ZnO membranes will be developed. Efficiency of these novel materials for degradation/removal studies of CECs (contaminants of emerging concern) in water by photocatalytic oxidation will be determined. In addition, evaluation of the degradation/decomposition mechanisms and application of the produced catalysts to waste water, scale-up studies will be carried out. Reusability of the produced nanocomposites will be tested first for photocatalytic degradation of model pollutants, and then for the treatment of real waste water.

In coordination with colleagues of collaborating groups of Aquality project, optimization of operational variables of the studied processes and, eventually, scale-up to pilot plant,
evaluation of CECs and transformation products and multifunctional membrane materials for separation and abatement of CECs from drinking waters and wastewater will be performed.

**Requirements:**

Offer Requirements

**REQUIRED EDUCATION LEVEL**
- Chemistry: Master Degree or equivalent
- Chemical Engineering: Master Degree or equivalent
- Environmental Engineering: Master Degree or equivalent

**REQUIRED LANGUAGES**
- ENGLISH: Excellent

**Skills/Qualifications**

Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills.

**Specific Requirements**

**REQUIREMENTS**

We are looking for one highly motivated PhD candidate with strong interest in environmental and water treatment research. The PhD candidate is required to have a master degree in Chemistry, Chemical Engineering, Environmental Engineering or closely related field. Candidate is expected to be fluid in English (both oral and written), good academic writing and presentation skills. The position is open to applicants from around the world, with the limitation that at the time of recruitment by KTU, researchers must not have resided or carried out their main activity (work and/or studies) in Turkey for more than 12 months in the 3 years immediately prior to the reference date.

The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience.
We announce one PhD position under the supervision of Prof. Antonio Arques Sanz, faculty members of the Universitat Politècnica de València (UPV), and Dr. Isabel Oller from Plataforma Solar de Almería. It will also be co-supervised by Dr. Carlos Escudero, from NIVA, Norway.

The PhD will be developed within the context of the recently granted European Innovative Training Network “Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY) with 15 PhD students working in 11 academic institutions and collaborating with 9 companies. Collaboration within the network is strongly encouraged.

All nodes of the AQUALITY network participate in the training, feeding upon collaborations through the network. The position includes short stays in some of the world leading research centers within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

**PROJECT DESCRIPTION**

The PhD project will be part of the work package leading with developing sun-driven Advanced Oxidation Processes (AOPs) for the enhanced removal of contaminants of emerging concern (CECs). The title of the PhD project is: “Emerging photochemical processes involving iron for wastewater treatment”. More specifically it will focus on the design and optimization of novel Fenton-based photochemical methods, their integration with other processes and assessment of their real applicability. Specific objectives are: (i) to study the applicability of several iron-driven processes (e.g solar (photo)-Fenton, zero-valent iron techn. or iron-containing photocat. to treat recalcitrant pollutants, (ii) to assess the role of DOM, (iii) Optimizing the operational variables and (iv) determining the chronic toxicity and endocrine disruption of the treated
mixture of these processes to apply selected processes to the treatment of the most relevant organic pollutants occurring in aquaculture facilities in water from real fish farms.

The candidate will develop interdisciplinary skills in photochemistry and environmental chemistry, especially in novel methods for wastewater treatment. The ESR will participate in all workshops and coordination meetings organized by the network and the multidisciplinary formation will be ensured by a well-defined program secondments described below. From the technical/scientific point of view, a better understanding of novel iron-driven processes will be achieved and it is expected to be a significant step forward for its real application to deal with real environmental threads.

Requirements:

Offer Requirements

REQUIRED EDUCATION LEVEL
Chemistry: Master Degree or equivalent
Chemical Engineering: Master Degree or equivalent
Environmental Engineering: Master Degree or equivalent

REQUIRED LANGUAGES
ENGLISH: Excellent

Skills/Qualifications

Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills.

Specific Requirements

REQUIREMENTS

We are looking for one highly motivated PhD candidate with strong interest in environmental and water treatment research. The PhD candidate is required to have a master degree in Chemistry, Chemical Engineering, Environmental Engineering, Bioengineering, or closely related field. Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills. The position is open to applicants from around the world, with the limitation that at the time of recruitment by UPV, researchers must not have resided or carried out their main activity (work and/or studies) in Spain for more than 12 months in the 3 years immediately prior to the reference date.

The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience.
We announce one PhD position under the supervision of the CNRS group at the ICCF (www.iccf.univ-bpclermont.fr/) in Clermont-Ferrand (France) within the context of the recently granted European Innovative Training Network “Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY) with 15 PhD students working in 11 academic institutions and collaborating with 9 companies. Collaboration within the network is strongly encouraged.

All nodes of the AQUALITY network participate in the training, feeding upon collaborations through the network. The position includes short stays in some of the world leading research centers within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

PROJECT DESCRIPTION

The PhD project focuses on the role and the fate of natural organic matter in the photochemical reactions occurring in sunlit surface waters and applicable to water treatments. Natural organic matter is an ubiquitous water constituent that plays a key role in the photochemical transformation of micropollutants in the aquatic environment and also interferes in the advanced oxidation processes widely used in water treatments. This research has direct environmental significance for understanding the behavior of natural organic matter in water under solar light irradiation and will bring valuable information to improve systems aiming at the pollution abatement in which NOM can have an effect.

The research will consist of carrying out kinetic and analytical studies using probe molecules and selected organic micropollutants to investigate the photosensitizing of coloured natural organic matter sampled in an instrumented site before and after specific treatments. The
characterization of the degradation products from natural organic matter will be one of the goals of the work.

In coordination with colleagues of collaborating groups of Aquality project, the fate of dissolved organic matter and selected micropollutants in discharge treatments will be studied.

Keywords: Reactivity, kinetic studies, photochemistry, chemical analyses, environmental chemistry

Requirements:

Offer Requirements

REQUIRED EDUCATION LEVEL
- Environmental Chemistry: Master Degree or equivalent
- Chemistry: Master Degree or equivalent
- Physical Chemistry: Master Degree or equivalent

REQUIRED LANGUAGES
- ENGLISH: Excellent

Skills/Qualifications

Candidates are expected to be fluent in English (both oral and written), good academic writing and presentation skills.

Specific Requirements

REQUIREMENTS

We are looking for a highly motivated PhD candidate with strong interest in environmental and water treatment research. The PhD candidate is required to have a master degree in Environmental Chemistry, Chemistry, Physical Chemistry or closely related field. Candidates are expected to be fluent in English (both oral and written), good academic writing and presentation skills. The position is open to applicants from around the world, with the limitation that at the time of recruitment by CNRS, researchers must not have resided or carried out their main activity (work and/or studies) in France for more than 12 months in the 3 years immediately prior to the reference date.

The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience.
ESR-11

| • ORGANISATION/COMPANY       | CIEMAT – Plataforma Solar de Almeria |
| • RESEARCH FIELD             | Chemical Engineering                |
| • RESEARCHER PROFILE         | Early Stage Researcher (ESR)        |
| • APPLICATION DEADLINE       | 10/12/2017 23:00 - Europe/Brussels  |
| • LOCATION                   | Spain › Almeria                     |
| • TYPE OF CONTRACT           | Temporary                            |
| • JOB STATUS                 | Full-time                            |
| • HOURS PER WEEK             | 40                                   |
| • OFFER STARTING DATE        | 01/02/2018                           |
| • EU RESEARCH FRAMEWORK     | H2020 / Marie Skłodowska-Curie Actions / Innovative Training Networks |
| • MARIE CURIE GRANT AGREEMENT NUMBER | 765860                              |

We announce one PhD position under the supervision of the Solar Treatment of Water (TSA) group at the CIEMAT-PSA (www.psa.es) in Almeria (Spain) within the context of the recently granted European Innovative Training Network “Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY) with 15 PhD students working in 11 academic institutions and collaborating with 9 companies. Collaboration within the network is strongly encouraged.

All nodes of the AQUALITY network participate in the training, feeding upon collaborations through the network. The position includes short stays in some of the world leading research centers within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

PROJECT DESCRIPTION

The PhD project focuses on the capability of several novel advanced oxidation processes (AOPs) for the treatment of drinking water. Aquality project is focused, among other, on the development of novel hybrid NF/solar photo-Fenton systems, also combined with ozonation/hydrogen peroxide and electro-Fenton. Efficiency of these novel processes for waterborne pathogens of emerging concerns inactivation in water will be analyzed. In addition, analysis and identification of disinfection-by-products (DBPs) generated during the processes will be investigated.

The PhD project aims to increase knowledge on innovative oxidation technologies for drinking water purpose. Therefore, the efficiency of the aforementioned AOPs for the inactivation of 4 families of water pathogens of health impact meaning in natural fresh water resources, with comparative to commercial drinking water technologies will be assessed. Kinetics studies and real drinking water disinfection cases will be also carried out.
In coordination with colleagues of collaborating groups of Aquality project, the effect of organic matter on the generation of DBPs with these technologies and the experimental analysis of the toxicity of these technologies for drinking water will be performed.

**Additional comments**

Note that there is another available PhD position dedicated to computational modeling for the same network (AQUALITY) in the same group (www.psa.es) at CIEMAT-PSA in Almeria (Spain).

Web site for additional job details

[https://www.psa.es](https://www.psa.es)

**Requirements:**

**Offer Requirements**

**REQUIRED EDUCATION LEVEL**

Chemical Engineering: Master Degree or equivalent  
Environmental Engineering: Master Degree or equivalent  
Chemistry: Master Degree or equivalent

**REQUIRED LANGUAGES**

ENGLISH: Excellent

**Skills/Qualifications**

Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills.

**Specific Requirements**

**REQUIREMENTS**

We are looking for one highly motivated PhD candidate with strong interest in environmental and water treatment research. The PhD candidate is required to have a master degree in Chemical Engineering, Environmental Engineering, Bioengineering, Chemistry, or closely related field. Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills. The position is open to applicants from around the world, with the limitation that at the time of recruitment by CIEMAT, researchers must not have resided or carried out their main activity (work and/or studies) in Spain for more than 12 months in the 3 years immediately prior to the reference date.

The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience.
We announce one PhD position under the supervision of the Section of Chemistry, Department of Chemistry and Bioscience, Aalborg University, Denmark. The PhD position is within the context of the recently granted European Innovative Training Network “Interdisciplinar cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALity) with 15 PhD students working in 11 academic institutions and collaborating with 9 companies. Collaboration within the network is strongly encouraged.

All nodes of the AQUALITY network participate in the training, feeding upon collaborations through the network. The position includes short stays in some of the world leading research centers within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

PROJECT DESCRIPTION

The PhD scholarship focuses on the development of a general model describing water transport and retention of micropollutants by ceramic nanofiltration membranes, also in the presence of high concentration of non-toxic organic matter. The project comprises both experimental work and theoretical modeling. A general model of fouling in nanofiltration membranes will be created and extended to the hybrid advanced oxidation-membrane systems, which will be developed by other network participants. The knowledge and the tools developed during this project are expected to have a high impact on the rational design of the future technologies for the removal of micropollutants from water systems.
**Additional Information**

Web site for additional job details: [http://www.vacancies.aau.dk/phd-positions/](http://www.vacancies.aau.dk/phd-positions/)

You may also obtain further information from Associate Professor Vittorio Boffa concerning the specific aspects of this PhD position (vb@bio.aau.dk).

Note that there is another available PhD position at Aalborg University, Denmark within the same network (AQUALITY) focusing on “Bioanalytical tools for integrated assessment of contaminants of emerging concern.” Moreover, an additional position on “A permeable and highly stable silicon carbide membrane for integrated nano-filtration/AOPs systems” is available at the company LiqTech International A/S.

**REQUIREMENTS**

We are looking for one highly motivated PhD candidate with strong interest in water treatment research. The PhD candidate is required to have a master degree in Chemical Engineering, Chemistry or closely related field. Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills. The position is open to applicants from around the world, with the limitation that at the time of recruitment by Aalborg University, researchers must not have resided or carried out their main activity (work and/or studies) in Denmark for more than 12 months in the 3 years immediately prior to the reference date.

The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience.
We announce one PhD position under the supervision of LiqTech International A/S and the co-
supervision of the Department of Chemistry and Bioscience, Aalborg University, Denmark. The
PhD position is within the context of the recently granted European Innovative Training
Network “Interdisciplinary cross-sectoral approach to effectively address the removal of
contaminants of emerging concern from water” (AQUALity) with 15 PhD students working in 11
academic institutions and collaborating with 9 companies. Collaboration within the network is
strongly encouraged.

All nodes of the AQUALity network participate in the training, feeding upon collaborations
through the network. The position includes short stays in some of the world leading research
centers within the network. Yearly meetings (summer schools and symposia) of the complete
network are foreseen.

PROJECT DESCRIPTION

Ceramic micro- and ultrafiltration membranes made from silicon carbide (SiC) are cutting-edge
technology in water filtration, considering the higher flux and lower environmental footprint
compared to traditional ceramic membranes. The PhD position will focus on the development
of a new high-flux SiC nanofiltration (NF) membrane for removal of Contaminants of Emerging
Concern (CEC), on understanding the phenomena governing selectivity and membrane fouling
of the new membrane, and to integrate the new membrane with an advanced oxidation
system for the simultaneous CECs abatement and fouling mitigation in a case study. At LiqTech
International A/S, an optimized ultrafiltration (UF) membrane will be developed as an
intermediate layer to support the functional NF membrane developed in collaboration with
Aalborg University. The selectivity towards different CECs will be investigated and the new
membrane will be integrated with an advanced oxidation system. The environmental impact,
investment and running costs for the integration of the new systems in a water treatment
The project will involve stabilization of nano-size SiC powders in aqueous suspension, possible use of sintering additives, adjustment of raw materials and processing parameters, study of pyrolysis and sintering, and characterization of microstructure and surface properties. For development of the functional NF layer, the project will furthermore involve layer application and pyrolysis of C-based precursors in the presence of SiC particles.

**Additional Information**

Note that there is another available PhD position at Aalborg University, Denmark within the same network (AQUALITY) focusing on “Modelling selectivity and fouling of hybrid membranes-advanced oxidation systems”.

**REQUIREMENTS**

We are looking for one highly motivated PhD candidate with strong interest in ceramics and membranes for water treatment. The PhD candidate is required to have a master degree in Ceramics, Chemical Engineering, Chemistry, Materials Science, or closely related field. Candidates are expected to be fluent in English (both oral and written), good academic writing and presentation skills. The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience and with experience in at least one of the following subjects: colloidal chemistry, ceramic suspensions, rheology, ceramic processing, sintering of ceramics, silicon carbide / silane chemistry, synthesis of porous materials, characterization of surfaces and porous materials, ceramic membranes, membrane technology, ultra- or nanofiltration. The position is open to applicants from around the world, with the limitation that at the time of recruitment by LiqTech International A/S, researchers must not have resided or carried out their main activity (work and/or studies) in Denmark for more than 12 months in the 3 years immediately prior to the reference date.
We announce one PhD position under the supervision of the Chemistry Department of Torino University (www.chemistry.unito.it) in Torino (Italy) within the context of the recently granted European Innovative Training Network “Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY) with 15 PhD students working in 11 academic institutions and collaborating with 9 companies. Collaboration within the network is strongly encouraged and promoted.

All nodes of the AQUALITY network participate in the training, feeding upon collaborations through the network. The position includes short stays in some of the world leading research centers within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

**PROJECT DESCRIPTION**

The PhD project focuses on preparation and characterization of multifunctional membrane materials for separation and abatement of CECs from drinking waters and wastewater.

AQUALity project is focused, among other, on the development of novel hybrid NF/solar photo-Fenton systems, also combined with ozonation/hydrogen peroxide and electro-Fenton. The main objective of the research is the development of novel nanostructured/hybrid/photo-and bioactive materials for efficient wastewater treatments by using bio-based, low-cost and available sources. More in detail: (i) synthesis of oxidic nanostructured and photoactive materials (both layers and particles) with controlled size and porosity for membrane technology applications; (ii) functionalization and characterization of nanostructured oxides with stimuli-responsive polymers and low-cost molecules (extracted from composted organic refuses) to obtain hybrid materials with tunable size to optimize membrane perm-selectivity.

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<th><strong>ORGANISATION/COMPANY</strong></th>
<th>UNITO – Torino University Chemistry Department</th>
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<td><strong>RESEARCH FIELD</strong></td>
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<td>Early Stage Researcher (ESR)</td>
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for CECs filtration; (iii) evaluation of the effectiveness of the newly synthetized materials in the removal of CECs from drinking waters and wastewater.

**Requirements:**

**Offer Requirements**

**REQUIRED EDUCATION LEVEL**
- Chemical Engineering: Master Degree or equivalent
- Environmental Engineering: Master Degree or equivalent
- Chemistry: Master Degree or equivalent
- Material Science: Master Degree or equivalent

**REQUIRED LANGUAGES**
- ENGLISH: Excellent

**Skills/Qualifications**

Candidates are expected to be English fluent (both oral and written), good academic writing and presentation skills.

**Specific Requirements**

**REQUIREMENTS**

We are looking for a highly motivated PhD candidate with strong interest in material science, surface functionalization of oxidic particles with biomolecules and physico-chemical characterization of materials for environmental and water treatment research. The PhD candidate is required to have a master degree in Chemical or Environmental Engineering, Chemistry, Material Science or closely related fields. Candidates are expected to be fluent in English (both oral and written), good academic writing and presentation skills. The position is open to applicants from around the world, with the limitation that at the time of recruitment by UNITO, researchers must not have resided or carried out their main activity (work and/or studies) in Italy for more than 12 months in the 3 years immediately prior to the reference date.

The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience.
We announce one PhD position under the supervision of the Solar Treatment of Water (TSA) group at the CIEMAT-PSA (www.psa.es) in Almeria (Spain) within the context of the recently granted European Innovative Training Network “Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water” (AQUALITY) with 15 PhD students working in 11 academic institutions and collaborating with 9 companies. Collaboration within the network is strongly encouraged.

All nodes of the AQUALITY network participate in the training, feeding upon collaborations through the network. The position includes short stays in some of the world leading research centers within the network. Yearly meetings (summer schools and symposia) of the complete network are foreseen.

**PROJECT DESCRIPTION**

The PhD project focuses on Application of advanced integrated technologies (membrane and photo-oxidation processes) for the removal of CECs contained in urban wastewater. Aquality project is focused, among other, on the development of novel hybrid NF/solar photo-Fenton systems, also combined with ozonation/hydrogen peroxide and electro-Fenton. Objectives: (i) the development and operation (batch and continuous mode) of NF membranes system based on a commercial polyamide material and the three ceramic membranes developed in this project (priority for high-flux membranes developed by ESR13); (ii) the evaluation of CECs retention as a function of their physico-chemical properties (pKa, LogKow, molecular weight, etc.) and operational parameters (pH, temperature); (iii) the evaluation of the treatment of NF concentrate by AOPs such as ozonation combined and hydrogen peroxide (by using lamps and solar irradiation) compared to photo-Fenton and photo-electro Fenton treatment under neutral conditions.

The PhD project aims to optimize new nanofiltration membranes system for improving permeates quality. During the second and third year of the project, the integration with
advanced photo-oxidation tertiary treatments will be assessed in order to determine the best efficient treatment not only from the technical but also from the economic point of view.

In coordination with colleagues of collaborating groups of Aquality project, key points to be studied in this project will be the identification and quantification of transformation by-products along tested tertiary treatments contained in actual water matrices as well as the evaluation of the related acute and chronic toxicity.

Additional comments

Note that there is another available PhD position dedicated to capability of several novel advanced oxidation processes (AOPs) for the treatment of drinking water for the same network (AQUALITY) in the same group (www.psa.es) at CIEMAT-PSA in Almeria (Spain).

Web site for additional job details

https://www.psa.es

Requirements:

Offer Requirements

REQUIRED EDUCATION LEVEL
- Chemical Engineering: Master Degree or equivalent
- Environmental Engineering: Master Degree or equivalent
- Chemistry: Master Degree or equivalent

REQUIRED LANGUAGES
ENGLISH: Excellent

Skills/Qualifications

Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills.

Specific Requirements

REQUIREMENTS

We are looking for one highly motivated PhD candidate with strong interest in environmental and water treatment research. The PhD candidate is required to have a master degree in Chemical Engineering, Environmental Engineering, Bioengineering, Chemistry, or closely related field. Candidates are expected to be fluid in English (both oral and written), good academic writing and presentation skills. The position is open to applicants from around the world, with the limitation that at the time of recruitment by CIEMAT, researchers must not
have resided or carried out their main activity (work and/or studies) in Spain for more than 12 months in the 3 years immediately prior to the reference date.

The candidates must demonstrate a high level of accomplishment and excellence in her/his previous academic experience.