ESR 1: Microporous functional electrodes for Electrochemical Water Oxidation

Objectives
The PhD project has its focus on the synthesis and characterization of microporous polymer electrodes decorated with heterogeneous water oxidation catalysts.

The successful candidate will contribute to the following tasks:

- Synthesis of molecular Water Oxidation Catalysts (WOC) modified with functional groups for
  - direct attachment to conductive polymers
  - incorporation into metal-organic frameworks (MOFs) networks
- Synthesis of MOFs containing WOC motifs.
- Synthesis of oxidatively rugged polymers.
- Incorporate the catalyst and MOFs in the microstructured electrode by the “breath figure” process to create bio-inspired structures.
- Implementing scalable printing techniques for depositing modified WOC-polymers on large area conductive substrates.
- Assess the environmental and economic sustainability of the related technologies and products by means of LCA and LCC methodologies.

This is a multidisciplinary project involving the synthesis of inorganic materials including coordination compounds and metal organic frameworks as well as conductive organic polymers and surface chemistry.

Host Institutions and Secondments
The chosen candidate will complete a PhD with an inter-disciplinary supervisory team and benefit from a world-class training programme, including placements with 4 international partners.

- 10 months in ICIQ (Spain)
- 12 months in University of Uppsala (Sweden)
- 9 months in UPPA (France)
- 5 months in Eurecat (Spain) - secondment
- 12 months in University of Uppsala (Sweden)

The candidate will be awarded a double PhD diploma of Uppsala University and Université de Pau et des Pays de l’Adour. PhD supervisors are Prof. Sascha Ott (Uppsala University, www.kemi.uu.se) and Prof. Laurent Billon (UPPA, www.univ-pau.fr). The expected time for a PhD degree in Sweden is 4 years, and the last 12 months of the position will be in Uppsala, under the employment rules for Swedish doctoral students.

Qualifications
- Master’s degree in chemistry, material science, or related disciplines.
- Strong interest in material science and advanced inorganic/organic and polymeric synthetic skills.
- Interested in the catalytic and electrochemical characterization of the functional materials and their application as anodes in the water splitting process.
- Strong interest in interdisciplinary scientific work
- Strong motivation to pursue a PhD degree and to develop a cross-disciplinary cutting-edge project.
- Excellent communication skills and willingness to work in collaborative projects with multiple partners
- Very good English language skills
- Self-motivation and the ability to achieve goals independently as well as to contribute effectively to the team
- Willing to travel within the EU and spend extended periods of time in various EU countries.
- Familiarity with environmental, health and safety (EHS) requirements.
Recruitment conditions
The student will be employed by ICIQ (Spain), the University of Uppsala (Sweden), and University of Pau (France), on a standard MSCA salary base (including mobility and family allowance) during 3 years and 1 year under Swedish standards.
Successful applicants will be required to start latest 1 October 2018 for a period of 4 years. Candidates are required to meet the Marie Sklodowska-Curie Early Stage Researcher eligibility criteria (https://ec.europa.eu/research/mariecurieactions/sites/mariecurie2/files/msca-itn-fellows-note_en_0.pdf). At the time of the appointment candidates must have had less than four years full-time equivalent research experience and must not have already obtained a PhD. Additionally, they must not have resided or carried out their main activity (work, studies, etc.) in Sweden for more than 12 months in the last 3 years immediately prior to the starting date.
Any appointment will be conditional upon satisfactory references, the fulfilment of any conditions specified in the offer of a place on a PhD programme, and confirmation of the right to work in the EU and ability to secure a valid visa.
Selections will be made regardless of gender, nationality, religion, ethnicity and cultural background, but aiming for a good balance among the group.

Selection process
A first selection process will consist of a screening of the curriculum vitae, academic course transcripts, a motivation letter and 2 recommendation letters. The short-listed candidates will be interviewed by teleconference/skype by the selection committee. The selected candidate will be approved by the selection committee.

Apply for this job
Send your application (CV, motivation letter, 2 recommendation letters together with academic course transcripts, all documents should be in English) to the following address:
esr1-application@escaled-project.eu
Please put in the object of your email that you are applying for the ESR1 position within the eSCALEd project.
Please check that you meet all eligibility criteria

The closing date for receipt of applications is 20 may 2018, 18:00 Stockholm Time (CET or GMT+1)