ESR 11: Functional electrodes for water oxidation and CO2/H+ reduction by evaporative coatings of nano-composites

Objectives
The PhD project will focus on polymer ink formulation based on carbonaceous fillers and polymers dispersed in organic/aqueous media for electrodes deposition by inkjet in dry or wet atmosphere (Microporous electrode). Water Oxidation Catalysts and molecular catalysts for CO₂ reduction will be anchored to conductive organic polymeric structures. The inks rheological properties and thin film features will be characterized and scalable printing techniques will be used. The printed electrodes will be prepared by inkjet and spray coating with and without patterning via nano-imprint lithography of the electrode/membrane. Adhesion on proton-conductive membrane will be measured by tack and peel test.

Host Institutions and Secondments
This project will be developed under a co-tutorial agreement and the applicant will obtain a double degree from Université de Pau et des Pays de l’Adour (France) and University of Stuttgart (Germany). The student will complete a PhD with an inter-disciplinary supervisory team and benefit from a world-class training programme, including placements with 5 international partners in the following sequence:

- 12 months in UPPA (France)
- 3 months in ICIQ (Spain) - secondment
- 3 months in CEA (France) - secondment
- 6 months in University of Stuttgart (Germany)
- 6 months in UPPA (France)
- 6 months in Eurecat (Spain)

PhD supervisors are Dr Jochen Kerres (University of Stuttgart, www.uni-stuttgart.de), and Prof. Laurent Billon (UPPA, www.univ-pau.fr).

Qualifications
- Master’s degree in chemistry, with skills in organic and polymeric synthetic as well as characterization techniques of polymer materials.
- Knowledge on bio and inorganic chemistry will be in advantage.
- 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 candidate will be employed by University of Stuttgart (Germany), UPPA (France) and Eurecat (Spain), on a standard MSCA salary base (including mobility and family allowance) during 3 years. Successful applicants will be required to start latest 1 October 2018 for a period of 3 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 Germany 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:
esr11-application@escaled-project.eu
Please put in the object of your email that you are applying for the ESR11 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 CET