ESR 9: Perovskite Semiconductor Nanocrystals for Multi-Junction Solar Cells

Objectives
The PhD project will focus on the development of perovskite nanocrystals inks for photovoltaic and photo-electrochemical water splitting applications. The successful candidate will be responsible for the synthesis of the inks, aiming to formulations based on environmental friendly solvents and on semiconductors with tunable bandgaps. The candidate will also take care of the thin film processing and the optical, structural and electrical characterization of nano-crystalline thin film and photovoltaic devices. The main target is the fabrication of high voltage and multi-junctions perovskite nanocrystal solar cells that can be used for photo-electrochemical solar fuel production. In addition to these research objectives the candidate will receive training on professional and personal skills for a successful career in Europe.

Host Institutions and Secondments
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 Eindhoven University of Technology (The Netherlands)
- 3 month in UPPA (France)
- 10 months in Italian Institute of Technology (Italy)
- 6 months in Solaronix (Switzerland) - secondment
- 3 months in Eurecat (Spain) - secondment
- 14 months in Eindhoven University of Technology (The Netherlands), of which 12 outside the project

The candidate will be awarded a double PhD diploma of Technical University of Eindhoven and Université de Pau et des Pays de l’Adour. PhD supervisors are Prof René Janssen (TUe, www.tue.nl), Dr. Annamaria Petrozza (IIT, www.iit.it) and Prof. Laurent Billon (UPPA, www.univ-pau.fr). The expected time for a PhD degree in the Netherlands is 4 years, and the last 12 months of the position will be in Eindhoven, under the employment rules for Dutch doctoral students.

Qualifications
- Master’s degree in chemistry, material science, or related disciplines.
- Strong interest in material science and physical chemistry.
- Interested in the optical and electrical characterization of functional materials and opto-electronic devices.
- Strong interest in interdisciplinary scientific work.
- Strong motivation to pursue a PhD degree and to develop a cross-disciplinary cutting-edge project.
- Excellent communication and writing skills.
- 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 the Eindhoven University of Technology (The Netherlands), UPPA (France) and the Italian Institute of Technology (Italy), on a standard MSCA salary base (including mobility and family allowance) during 3 years and 1 year under Netherlands 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 Skłodowska-Curie Early Stage Researcher eligibility criteria.
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 The Netherlands 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:

esr9-application@escaled-project.eu

Please put in the object of your email that you are applying for the ESR9 position.

Please check that you meet all eligibility criteria

The closing date for receipt of applications is **20 May 2018, 18:00 CET**