



Code: 24/029

Project: ACTFAST

Area: Advanced Materials for Energy

Area leader: Prof. Joan Ramon Morante

Group: Solar Energy Materials and Systems, SEMS

Group leader: Prof. Alejandro Pérez Rodríguez

The Solar Energy Materials and Systems group, belonging to the Advanced Materials for Energy area, is announcing an early stage (predoctoral) researcher position, in the research line of:

DEVELOPMENT AND ADVANCED CHARACTERISATION OF WIDE BAND GAP THIN FILM CHALCOGENIDE SOLAR CELLS

Position description: The candidate will carry out a PhD project involving a multidisciplinary scientific and technological activity centred in the development and advanced characterisation of innovative wide bandgap chalcogenide PV technologies for semi-transparent and top cell tandem applications. This includes emerging chalcogenides such as kesterites ($\text{Cu}_2\text{ZnSn}(\text{S},\text{S})_4$ based compounds) and Sb_2S_3 compounds. The candidate will join an interdisciplinary research team that is at the forefront in Europe in the field of emerging chalcogenide PV technologies. The candidate will interact actively with the wide international network of research labs of the SEMS group in IREC, which includes the leading and world reference groups developing these technologies. The position corresponds to a doctoral scholarship according to the general conditions of IREC. The contract will be for 4 years and will begin in the first quarter of 2024. The scholarship includes full social security coverage and a gross monthly amount of approximately 1593 EUR/month for the first 3 years and approximately 2039 EUR/month for the fourth year. The contract will also cover tuition for the doctoral program at the University of Barcelona and travel and accommodation expenses for research stays, conferences and schools.

Tasks to develop: The candidate will work on the design and development of innovative device architectures, including the development of optimised chalcogenide absorbers and the screening and optimisation of suitable charge transport layers, as well as the advanced characterisation of the solar cell device prototypes, implementing advanced combinatorial characterisation methodologies. The PhD will have a strong interaction with on-going European cooperative projects that are being coordinated by the IREC SEMS group, which will favour interaction with world leading centres and research groups.

Requisites: The candidate must be in possession of a master's degree in physics, Materials Engineering or equivalent before the incorporation date, allowing him to pursue PhD studies. Previous experience in thin film chalcogenide technologies and advanced optical, structural and electrical characterisation techniques will be well evaluated.



Candidacy: Send the CV, a motivation letter and academic certificates (of both degree and master studies, with topics and qualifications) to Prof. Alejandro Pérez-Rodríguez (e-mail aperezr@irec.cat) indicating **Ref.24/029** in the subject of the e-mail.

Deadline: January 31st 2024

Starting date: First quarter of 2024

Expected duration of contract: three years contract with potential extension to a 4th year