



ADEME



Agence de l'Environnement
et de la Maîtrise de l'Energie

Postdoctoral position opening Ile-de-France Photovoltaic Institute (IPVF)



Postdoctoral position (f/m) – Innovative encapsulation solutions of flexible CIGS solar cells

Project description: For a cost-competitive full market entry, flexible CIGS PV technologies require the availability of innovative encapsulation solutions with both very low costs and excellent barrier properties guaranteeing a long operating time of the devices. To solve these problems, the SOLAR-ERA.NET project DURACIS has gathered a consortium of 10 partners, academic and industrial, from five different countries. At a national level, the French partners are supported by ADEME agency.

The DURACIS project explores new concepts, alternative encapsulation and optical glue materials, compatible with their implementation into already existing industrial CIGS pilot lines, to allow a significant extension of the lifetime while substantially reducing costs.

To achieve this goal, transfer of concepts that have been developed successfully to organic technologies (with very stringent encapsulation requirements) will be investigated. Notably, one approach of DURACIS involves hybrid methodologies combining ALD (Atomic Layer Deposition)/sputtering barrier layers with fast UV cured liquid encapsulants. The implications of the different kinds of substrates on these new encapsulation concepts will be specifically addressed aiming at the development of optimized cost efficient solutions compatible with very long term stability.

The "Institut Photovoltaïque d'Île-de-France" IPVF aims at becoming one of the main global research, innovation and education center in the field of photovoltaic solar energy. Composed of international well-known industrials, leading in PV industry (EDF, Total, Air Liquide, Horiba and Riber) and academic research teams (CNRS, Ecole Polytechnique), IPVF wants to increase performances and competitiveness of PV solar cells and develop new breakthrough technologies.

The Postdoctoral researcher will be expected to:

- Develop new hybrid encapsulation solutions for flexible CIGS solar cells
- Adapt the CIGS solar cells architecture
- Provide a fundamental understanding of the relationship between the synthesis conditions, the material properties and the encapsulation performance.

The Postdoctoral researcher will benefit from:

- the expertise in thin film deposition techniques (vacuum and solution techniques, ALD, sputtering) and in photovoltaic devices,
- the expertise and the facilities available within the European consortium,
- the various material and device characterization techniques available at IPVF, in particular its fabrication capabilities of high-efficiency CIGS solar cells on flexible substrates.

Location: The researcher will be based in the new IPVF building on the Paris-Saclay campus.

Starting date: Depending on applicant availability, not sooner than 07/2018, no later than 03/2019.

Duration: 18 months.

Profile: We are looking for an autonomous, motivated and hard worker young investigator. The candidate should hold a doctorate in Chemistry, and/or Physical Chemistry, and/or engineering discipline. The applicant needs to be skilled in technology, synthesis and thin film deposition techniques. Experience in OLED or O-PV is a plus. Experience in encapsulation will be highly appreciated.

Supervisors: Nathanaelle SCHNEIDER (CNRS), Thibaud HILDEBRANDT (EDF)

Funding: This Postdoctoral position will benefit from the support of ADEME.

Application: CV + Letter of motivation + 2 reference contacts from former advisor/professor to be sent to n.schneider@chimie-paristech.fr and thibaud.hildebrandt@edf.fr. There is no deadline for application but the position will be filled as soon as a solid applicant is identified.