



Post-doctoral position

Perovskite materials as an interfacial layer of hybrid perovskite solar cells

Employer: University of Limoges, CNRS (France)

Workplace: XLIM Research Institute, Limoges, France (www.xlim.fr)

Expected starting date: 02/2015 – 04/2015

Gross salary: around 2300€ per month

Keywords : Perovskite, Photovoltaics, Material Sciences, Optoelectronic devices

Scientific supervisor: Dr. Sylvain Vedraïne, Associate Professor

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A post-doctoral position is proposed at the XLIM laboratory for the development of perovskite-based photovoltaic solar cells using an interfacial layer based on oxide of perovskite. Perovskites recently demonstrated a technological breakthrough in the field of third generation solar cells, associated with power conversion efficiencies above 20%. These perovskite solar cells are developed at relatively low cost and present high efficiencies, making them suitable for applications such as micro-sources for self-powered sensors. Conventional configuration involves placing the hybrid perovskite layer between two interfacial layers : an electron transporting layer (usually, titanium dioxide) and a hole transporting layer (typically molecular glasses). These devices still suffer of a poor stability and a high cost of these interfacial layers.

In this context, we have initiated a new research axis between XLIM and SPCTS devoted to the development of stable photovoltaic devices based on perovskite materials by replacing the molecular glasses. Indeed, perovskite oxides are very stable materials and often P-type. The optical and electrical properties of the latter are adjustable according to their compositions and their stoichiometries, which allows them to be used in a large number application. This program involves two complementary research groups specialized in material characterization and device processing.

The open post-doctoral position is therefore required in order to stable solar cells and characterize their properties. Especially, the successful candidate will focus on the achievement a hole transporting layer, by varying the main physical properties of the perovskite oxide (nature, crystallinity, morphology).

The candidate will take benefit from the PLATINOM technology platform at XLIM.

Profile of the candidate:

The postdoctoral position is open from the end of 2015 / beginning of 2016. We are looking for a highly motivated young researcher presenting a relevant experience in the general field of solar cells. Some experience in perovskite materials will be appreciated. The ideal candidate also demonstrates good experimental skills, as well as suitable team working abilities. Good communication skills will also be highly appreciated. Applicants must send their cover letter, a detailed CV including a list of publications, as well as two references, to:

Dr. Sylvain Vedraïne

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