18 Boulevard Thomas Gobert
91120 Palaiseau
FRANCE

IPVF Job Offer

MISSION TITLE

IPVF Postdoc position on nanophotonics for hot-carrier solar cells

POSITION DESCRITPTION

Function	Research engineer	**Reference :**	(réf de la demande de recrut)
Contract type	Fixed term	**Duration**	36 months
Starting date	As soon as possible	**Education**	Ph.D
Working Place	Palaiseau, Paris area	**Salary**	Profile dependent

IPVF IN BRIEF

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 with 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 thanks to:

- A research program : 5 programs and 12 projects
- Experimental laboratories open to PV actors : 100 state-of-the-art tools, in a dedicated IPVF building
- Education program with a master and PhD students

JOB CONTEXT

- The Ile-de-France Photovoltaic Institute (IPVF) and the Center for Nanoscience and Nanotechnology (C2N-CNRS, SUNLIT team) are seeking several postdoctoral researchers to work on III-V solar cells for high-efficiency and low-cost photovoltaics. The projects will be carried out in close collaboration between the two institutes.
- *This project will benefit from the recent breakthroughs demonstrated by the IPVF and C2N teams.* We have recently developed novel strategies for light-trapping, leading to ultrathin (200 nm) GaAs solar cells with a record efficiency of nearly 20% (*Nature Energy, 2019*, https://www.nature.com/articles/s41560-019-0434-y). This result opens new opportunities for the development of high-efficiency photovoltaics based advanced concepts, like hot-carrier solar cells. Indeed, we have also achieved state-of-the-art results on hot-carrier solar cells (Nguyen et al., *Nature Energy, 2018, https://www.nature.com/articles/s41560-018-0106-3*), using advanced characterization techniques based on hyperspectral luminescence and applied to complete solar cells.

MAIN MISSIONS

- The candidate will directly reports to the vice-CTO, and will be integrated to the Novel Concepts program.
- The postdoc will be in charge of the conception and fabrication of nanostructure arrays to trap light in ultrathin solar cells, with a particular focus on the improvement of the hot-carrier solar cells developed at IPVF. It will involve electromagnetic simulations, nanofabrication process, and characterizations. The post-doc will benefit from a multidisciplinary environment and will have access to the unique, complementary clean-room facilities at IPVF and C2N including state-of-the-art epitaxy, nanofabrication and characterization tools.
- The ideal candidate will have a PhD in material science, semiconductor physics, or related. Previous experience in nanophotonics, nanofabrication, III-V semiconductors, photovoltaics is desirable but not essential. More information and recent publications from the C2N team can be found here: http://sunlit-team.eu/
- The positions will start immediately for 18 months. Applications will be reviewed as received until the position is filled.

CONTACT

Cover letter and résumé to be sent to: stephane.collin@c2n.upsaclay.fr, andrea.cattoni@c2n.upsaclay.fr