

Triple-Junction Solar Cells for Concentrated Photovoltaics (CPV), and III-V devices

Record number : OPR-785

Overview

RESEARCH DIRECTION

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ADMINISTRATIVE UNIT(S)

Faculté de génie
Département de génie chimique et de
génie biotechnologique
Département de génie électrique et de
génie informatique
Département de génie mécanique

LEVEL(S)

Stage postdoctoral

LOCATION(S)

3IT - Institut interdisciplinaire d'innovation
technologique

Project Description

Triple junction cells are made of III-V materials (InGaAs, InGaP, etc.), grown by epitaxy on a Ge substrate. From the epitaxial wafer, many micro-fabrication steps in a clean room are necessary to manufacture a cell that can be integrated into a module. As part of a project with several industrial partners, you will be responsible for activities related to the manufacture of concentrated solar cells and other III-V devices. To do this, you will supervise the work of students working in the clean room (PhD, MSc, trainees) and set up micro-manufacturing processes for the targeted application. You will report to the research group and its industrial partners, and you will promote this work through publications in scientific journals or at conferences in the field.

Main tasks :

- Micro-fabrication, including standard clean room techniques: etchings, photolithography, bonding of substrates.
- Supervision and training of students on their internship, master's and doctoral projects
- Material and electrical characterizations: Scanning electron microscope, EDX, profilometer, 4-point measurements, I-V under solar simulator and flash tester
- Project Follow-up with industrial partners

Requirements:

- PhD in physics, materials science, semiconductors, nanotechnologies, or related
- Experience in clean room micro-manufacturing and mastery of micro-manufacturing techniques (required)
- Material characterizations and/or electrical characterizations
- Knowledge and interest in photovoltaics
- Good interaction skills. Good work autonomy
- Taste for supervision and project management
- French language knowledge would be a bonus, but is not mandatory

Discipline(s) by sector

Sciences naturelles et génie

Génie électrique et génie électronique

Funding offered

Yes

Partner(s)

Stace

The last update was on 23 October 2025. The University reserves the right to modify its projects without notice.