

October 18th, 2016

Research internship/PhD Position Available
at the Group of III-V Semiconductors on

ADVANCED MODELING AND CHARACTERIZATION TECHNIQUES FOR MULTIJUNCTION SOLAR CELLS

INTRODUCTION

Multijunction solar cells exhibit record photovoltaic conversion efficiencies, over 45%. However, they are complex devices involving several subcells connected in series, which are difficult to characterize separately. The progress in the development of these devices heavily relies on the accurate **characterization of their optical and electrical properties**. A wide room for improvement exists, including the implementation of new techniques which will expand the understanding of multijunction solar cells and allow the generation of new knowledge supporting the advancement of the multijunction solar cell technology.

SCOPE

The work will be focused on developing **advanced optical and electrical characterization techniques** for high quality multijunction solar cells, and applying them to the study of the devices developed at IES-UPM. This work will encompass the development of advanced modelling in order to assess, complement and corroborate the characterization results.

RESEARCH CENTER

This work will be carried out at the **III-V Semiconductor Group of the Solar Energy Institute - Technical University of Madrid**, an internationally renowned group in the field of III-V multijunction solar cells, holding several photovoltaic conversion efficiency records.

REQUIREMENTS

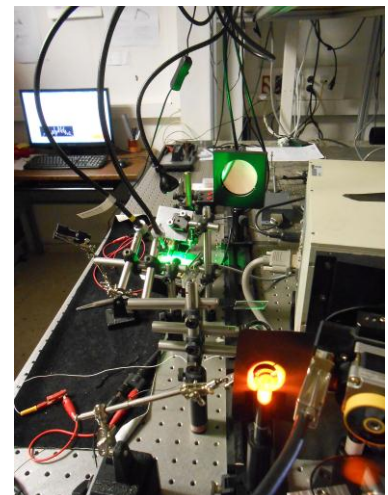
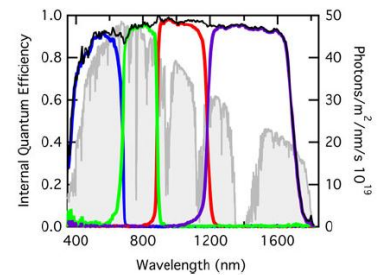
- A degree in Physics, Electronics/Electrical/Telecommunication/Industrial Engineering or Materials Science.
- Basic knowledge in instrumentation control and characterization techniques, computational skills are highly desirable (proficiency in IGOR and/or MATLAB and/or LabView is valuable).
- Good academic record (above **8.0/10.0**).
- Great motivation for scientific work and ability for team work.
- Full proficiency in English.
- Flexible starting date, but not later than February 2017.
- Work results can be used towards achieving a "Proyecto Fin de Máster" or similar.

GENERAL CONDITIONS

- The selected candidate would start the PhD in our group with a contract according to University regulations and will also apply for public funding (FPU/University/...): **next call opening expected Dec 2016**.
- Excellent experimental infrastructure and international atmosphere.
- Publication of results in high impact international journals.
- Attendance to scientific conferences worldwide.
- Research stays in partner labs in Europe and/or the USA.

APPLICATIONS

Interested candidates should send their CV to Dr. Iván García (igarcia@ies-def.upm.es)



Example of characterization of a 4-junction solar cell: internal quantum efficiency (IQE) and equipment used