SOLAR ENERGY INSTITUTE
TECHNICAL UNIVERSITY OF MADRID

February, 2019

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

DEVELOPMENT OF PHOTOVOLTAIC LASER POWER CONVERTERS

INTRODUCTION

Power-by-light (PBL) is an emerging technology aimed at replacing conventional copper wire-based powering of sensor systems in applications or regions that have strict safety requirements. Such applications or regions usually called "exclusion regions", typically present a critical risk of explosion or high electromagnetic noise, such as refineries, mines, fuel tanks, high-voltage lines, satellites, aircrafts, nuclear plants, etc. The **III-V Semiconductors Group at the Solar Energy Institute** of the Technical University of Madrid (http://www.ies.upm.es/Investigacion/IES_GI/S_III_V) is a world leading research group in the field with an experience of more than 20 years. PBL systems are made up of a high power laser, an optical fibre and a photovoltaic converter. The activity of the III-V Semiconductors Group covers the manufacturing of the photovoltaic converter and also the design, integration and assembly of the whole PBL system.

SCOPE

The work proposed will be framed within a "**Synergic R&D project in new and emergent scientific areas at the cutting edge" funded by the Comunidad de Madrid.** The tasks to accomplish in the PhD work will be focused on the development and manufacturing of the PV converter and it includes the theoretical design, experimental manufacturing and electro-optical characterization.

REQUIREMENTS

- A degree in Physics, Electronic Engineering or Materials Science
- Basic knowledge on semiconductor physics and device physics. Computational skills are highly desirable
- Good academic record (above 2.0/4.0 or 7.0/10)
- Great motivation for scientific work and ability for team work
- Full proficiency in English and basic knowledge of Spanish (or commitment to get it!) for foreign students. The full proficiency in English also applies for Spanish native speakers.
- Starting date in spring of 2019.

GENERAL CONDITIONS

- The selected candidate would start the PhD in our group with a contract within the frame of a Comunidad de Madrid project.
- In case that the candidate is studying a master degree, a grant can be paid till the starting of the PhD work.
- Excellent experimental infrastructure and international atmosphere.
- Attendance to scientific conferences worldwide
- Research stays in partner labs in Europe and/or the USA

APPLICATIONS

Interested candidates should send his/her CV and transcripts of all undergraduate and graduate (if any) coursework to Prof. Carlos Algora (algora@ies-def.upm.es)