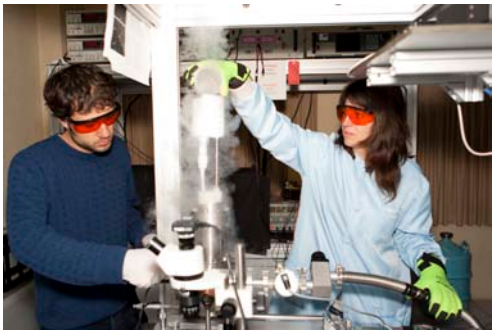
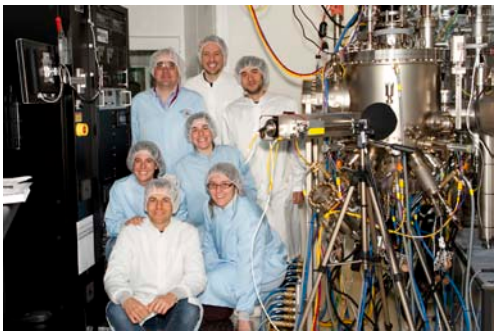
INSTITUTE OF SOLAR ENERGY
TECHNICAL UNIVERSITY OF MADRID

PhD offer

HYBRID THERMIONIC-PHOTOVOLTAIC ENERGY CONVERSION



The research group "Silicon and Novel Concepts for Solar Cells" is looking for a candidate willing to follow the PhD to contribute to the development of a ***novel kind of heat-to-power converter*** based on both thermionic and photovoltaic effects: the so-called hybrid Thermionic-Photovoltaic (TIPV) device[1]. This device is intended to the direct conversion of heat into electricity at very high temperatures (above 1000ºC) by taking advantage of the emission of electrons and photons from an incandescent body.



The PhD project will consist of both the theoretical and experimental study of these devices, and it will be aligned to a European Project called "***Next GenerAtion MateriAls and Solid State DevicEs for Ultra High Temperature Energy Storage and Conversion***" **(AMADEUS)**[2] that has just started in January 2017 and involve seven partners from six European countries. Within this project, the TIPV devices will be integrated in a full energy storage system based on molten silicon alloys at temperatures above 1380ºC.

REQUIREMENTS

- Master degree in Physics, Mechanical Engineering, Electrical Engineering, or Materials Engineering.
- Excellent academic record (above 8.0)
- Knowledge on semiconductor device physics and electromagnetism will be a plus.
- Full proficiency in English, knowledge of Spanish will be a plus.

GENERAL CONDITIONS

- Four years contract
- Gross salary: 16,500 €/year (equivalent to official Spanish PhD fellowships).
- Excellent experimental infrastructure and international atmosphere, attendance to international scientific conferences and research stays in partner labs in Europe.

APPLICATIONS

Interested candidates should send his/her resume and transcripts to Dr. Alejandro Datas (a.datas@ies-def.upm.es)

REFERENCES OF THE PROJECT

http://www.futurenergyweb.es/pdf/articulos/Tecnologia.pdf
http://www.upm.es/internacional/UPM/UPM_Channel/News/609a9a401a73a510VgnVCM10000009c7648aRCRD

[1] A.Datas, Applied Physics Letters 108(14):143503 · April 2016
[2] www.amadeus-project.eu