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Code:
Project: In4CIS
Area: Advanced Materials for Energy
Area leader: Prof. Joan Ramon Morante
Group: Solar Energy Materials and Systems, SEMS
Group leader: Prof. Alejandro Pérez Rodríguez

The Solar Energy Materials and Systems Group (SEMS) announces a project engineer position in the following technological line:

Development of Artificial Intelligence Assisted Systems For Autonomous Research and Industrial Process Monitoring

Position description: Engineer position to give support in the electro-mechanical design, implementation, and AI-software development of an innovative optical multi-sensor-based system for autonomous research and industrial inspection of CIGS high efficiency solar modules. This position will be performed in the frame of the European project In4CIS.

The candidate will be incorporated in an interdisciplinary team with access to optical, mechanical, and electronic workshops with the possibility to participate in high level research, development of research and industrial systems and collaborate with cutting-edge international research centres and industries.

Additionally, there will exist the possibility of carrying out a PhD thesis in the frame of the position.

The work category and salary will be evaluated based on the candidate profile.

Project description: In4CIS aims to establish and demonstrate at **pre-industrial level** optical advanced methodologies for the **in-line assessment** of advanced CIGS processes for the **fabrication** of **high efficiency photovoltaic modules**. CIGS is a material based on Cu-In-Ga-Se used in thin film solar cells. It is an established industrial technology that is already competitive with silicon solar cells. **Transfer new-process concepts from pre-industrial to industrial level** requires the of high sensitivity tools and methodologies compatible with in-line industrial process monitoring. The In4CIS project proposes the **development and implementation of a complete multi-sensing solution (optomechanical hardware and control/data processing software) based on optical methodologies** (Raman scattering/Photoluminescence) **and Artificial Intelligence** adapted to the requirements of **industrial process monitoring** (fast, non-destructive, quantitative and autonomous).

Tasks to develop: The candidates will work on the electrical-mechanical design of optical-based inspection systems and on the development of AI-based algorithms and software for autonomous data acquisition, processing and results presentation.

Candidate requirements: The candidate needs to be in possession of a Master's degree (MSc, MEng) in fields related to: electronics, electrical/mechanical engineering, programming, metrology, instrumentation, data science, statistics, mathematics, physics, or optics. In addition, the candidate will need to have demonstrable knowledge in programming languages (such as LabVIEW, Python, MATLAB, C...), demonstrable English language (written and spoken), and high motivation with balanced team work and autonomy skills.
Additionally, the following skills/knowledge will be well evaluated: software development, applied Electronics, metrology, statistical data processing and treatment, artificial intelligence algorithms for data processing, mechanical design software (Autocad, Solidworks, Inventor...), photovoltaics, optics, spectroscopic characterization techniques, and laboratory and research experience.

Candidacy
Send the CV, Degree and Master Diplomas, and Degree and Master records to Dr Victor Izquierdo-Roca (vizquierdo@irec.cat) indicating "In4CIS Monitoring Position" in the subject of the e-mail.

Deadline: July 31th 2021 at 17:00 hs.
Starting date: September/October 2021
Duration of contract: minimum 12 months

For additional information please contact with Dr. Victor Izquierdo-Roca (vizquierdo@irec.cat)