



Project Acronym: KESTCELLS

Project title: Training for sustainable low cost PV technologies: development of kesterite based efficient solar cells. (Grant agreement no: 316488, FP7-PEOPLE-2012 ITN, Multi-ITN)

The Marie Curie Initial Training Network Kestcells is recruiting 1 **PhD position (early stage researchers)**. KESTCELLS is a network for the structured interdisciplinary training of researchers in advanced thin film photovoltaic (PV) technologies. The project proposes the development of new technologies compatible with the cost, efficiency, sustainability and mass production requirements that are needed to become a reliable and future alternative to conventional non renewable energy sources. With this objective in mind, KESTCELLS network will focus on the development of kesterite based solar cells.

The consortium is formed by research institutes, universities and companies with strongly complementary expertises. All these aspects are relevant for the definition of a structured interdisciplinary training programme for the formation of high level researchers that will be required in Europe for the development of competitive PV technologies

The candidate will work in the framework of the KESTCELLS Project, being part of a Project with a high level consortium, formed by Research Groups that are reference groups in the Thin Films Photovoltaic field in Europe. This will ensure a career development in a highly professional environment, with training in the different aspects of the Photovoltaic Technology, from fundamental material science aspects, to growth techniques in thin films technology, characterization, innovation and industrial implementation, entrepreneurship, etc. A complete training program will include local training activities, as well as network wide activities (thematic and network workshops, intensive courses), and several stays at Academic and Industrial sites.

Research fields:

Thin Films Photovoltaics, Kesterites, $\text{Cu}_2\text{ZnSn}(\text{S,Se})_4$, Physical Vapour Deposition, Chemical Routes, Characterization, Modelling, Solar Cells

Elegibility criteria:

- The ITN project is subject to a very restricted mobility criteria: candidates are required to carry out trans-national mobility when taking out they appointment. At the time of recruitment by the host organization the newly recruited researcher must not have resided or carried out his/her main activity in the country of the host organization, for more than 12 months in the 3 years immediately prior to his/her recruitment under the project. Compulsory national service and/or short stays such as holidays are not taken into account. The researcher may be of any nationality.
- The candidate must be a EARLY STAGE RESEARCHER as defined in the ITN programme. This means that at the time of the recruitment he/she has not been awarded the doctorate degree and is in his/her 4 first years (full time equivalent) of his/her research carrer, counted from the data of obtaining the diploma that gives the rights to embark in a doctoral degree.

The recruitment process will be open, transparent, impartial and equitable following the guidelines of the European Charter of Researchers. Applications will be collected by the coordinator and distributed to the members of the consortium.



Position 4: Development of CZTSe based absorbers by PVD processes. (Code ESR2.1)

Country: United Kingdom (Newcastle upon Tyne)

Institution: Northumbria University

Duration: 36 months

Incorporation: February 1st, 2013

Deadline for applications: December 15th, 2012

Department: Engineering & Environment

Head of the Department: Prof. Glen McHale

Group: Northumbria Photovoltaics Applications Centre (NPAC)

Group Leader: Prof. Nicola Pearsall

Fellowship Supervisor: Dr. Ian Forbes

Field: Photovoltaics, thin film materials, solid state physics

The Ph.D. candidate will carry out a multidisciplinary activity with the final aim to develop a cost effective physical vapour deposition (PVD) route for producing CZTSSe devices with relevance to commercial production. The research will include developing metal precursor deposition and conversion strategies based on magnetron sputter deposition, optimisation of the polycrystalline thin film absorber layer properties for device applications and comprehensive materials and optoelectronic characterization of these layers and devices.

The recruited candidate will be involved in the following training activities:

- 1 secondment of 3 months at HZB (Berlin, Germany)
- 1 secondment of 3 months at EMPA (Zurich, Switzerland)
- 1 industrial secondment of 1 month at NEXCIS (France)
- Participation in 5 specialized Workshops
- Participation in two intensive courses in management and business
- Participation in all the ITN Project Meetings

Requirements: Candidates must hold/have a good university degree with research experience (Masters or equivalent) in Physics, Materials Science or similar relevant subject. The successful candidate will be expected to be self-motivated and enthusiastic with ability to work as part of a team and independently and bring creativity to the research. A strong background in thin film materials deposition and characterisation and experience in optical and electrical characterisation and underlying theoretical understanding is desirable. Also, it is required that at the start of contract, the candidate has not been yet awarded a doctorate degree and is in the first 4 years (full-time equivalent) of his/her research career.

Salary: Monthly remuneration according to Marie Curie ITN Rates (<http://cordis.europa.eu/fp7/people>).

Submission of the candidacy: candidacy has to be submitted via e-mail to kestcells@irec.cat and ian.forbes@northumbria.ac.uk, including the following documents (please specify the code ESR2.1 in the application):

1. CV including photo and personal data
2. Degree diploma
3. Certificate of records of the degree including marks average



4. Master diploma or certificate
5. Certificate of records of the master including marks average
6. Motivation letter
7. Letter certifying that the candidate fulfils the international mobility criterion.

Additional information: www.kestcells.eu or kestcells@irec.cat