

## Partners



UPPSALA  
UNIVERSITET



The overall objective of this project is the creation of a Training Network for the structured interdisciplinary training of researchers in advanced thin film PV technologies. The project will contribute to the formation and training of a collective of high level researchers that is required to ensure the further strategic development of PV technologies in Europe, as described by the Technology Roadmap for PV Energy of the European Commission. Lack of professionals with these competences has been already identified as one of the main risks for the future development and consolidation of a competitive PV industrial strategic sector at EU level.

Twelve Early Stage Researchers (ESR) and two Experienced Researchers (ER) will be trained during the project in strongly complementary aspects related to fundamental materials science, advanced growth techniques in thin film technologies, techniques for advanced characterisation and process monitoring, modelling and design of devices, as well as aspects related to the innovation and industrial implementation of production lines and market analysis.

## Contact

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Acronym  
Full title  
Project: no  
Coordination  
Consortium

KESTCELLS

Training for sustainable low cost PV technologies: development of kesterite based efficient solar cells  
FP7-PEOPLE-2012-ITN. 316488

IREC

IREC, Helmholtz Zentrum Berlin, Germany, EMPA Swiss Federal Laboratories Materials Science and Technology, Université de Luxembourg, Northumbria University, Aix-Marseille University, Free University Berlin, Autonomous University of Madrid, University of Uppsala-Angstrom Solar Center, NEXCIS Photovoltaic Technology and Abengoa Solar New Technologies

ESADE

[www.kestcells.eu](http://www.kestcells.eu)

Associated partner  
Project web site





### Scientific objectives

The project aims to develop PV technologies based on new kesterite type materials and processes 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. Kesterites are quaternary compounds with general composition  $Cu_2ZnSnS_4$  (CZTS) and  $Cu_2ZnSnSe_4$  (CZTSe) and their crystalline structure is very similar to that of chalcopyrites as  $Cu(In,Ga)(S,Se)_2$  (CIGS). These new materials have a high potential for low cost thin film PV technologies, due to their direct band-gap and high optical absorption coefficient, as well as the possibility of synthesis of p-n hetero-junctions with high quality polycrystalline p-type absorbers. In contrast to CIGS, kesterites are formed by earth abundant or cheap elements.

### Work Packages

The work of kestcells is organized in 9 distinct work packages

- WP1 Fundamental properties of kesterites
- WP2 Develop. of absorbers by PVD and chemical based processes
- WP3 Implementation of solar cells
- WP4 Cell & process monitoring
- WP5 Modelling & design
- WP6 Industrial scale up, transferability and exploitation
- WP7 Training
- WP8 Dissemination & Outreach
- WP9 Coordination

### Research training opportunities

Kestcells includes the recruitment of 14 positions. For more information please visit the [www.kestcells.eu](http://www.kestcells.eu) or contact [kestcells@irec.cat](mailto:kestcells@irec.cat).

		RESP	FELLOW	DATE	
WP1	Fundamental properties of kesterites	UL	ESR1.1	15/01/2013	FILLED
		UAM	ESR1.2	01/02/2013	FILLED
		IREC	ESR1.3	01/02/2013	FILLED
		FUB	ESR1.4	01/02/2013	FILLED
WP2	Develop. of absorbers by PVD and chemical based processes	NU	ESR2.1	01/02/2013	FILLED
		UU-ASC	ESR2.2	01/02/2013	FILLED
		IREC	ESR2.3	01/04/2013	FILLED
WP3	Implementation of solar cells	HZB-EI2	ESR3.1	01/08/2013	
		EMPA	ESR3.2	01/08/2013	
WP4	Cell & process monitoring	NEXCIS	ESR4.1	01/06/2013	
		HZB-EI3	ESR4.2	01/03/2013	
WP5	Modelling & design	AMU	ESR5.1	01/01/2013	FILLED
WP6	Industrial scale up, transferability and exploitation	ASNT	ER6.1	01/09/2014	
		NEXCIS	ER6.2	01/09/2014	

ESR stands for Early Stage Researcher, ER for Experienced Researcher.

