



## Next Generation High-Efficiency Photovoltaics

International School and Workshop

Palma, Mallorca, Spain

1-4 October 2019

# NextGen '19

### Tuesday 1<sup>st</sup> October (Tutorials)

8:30 - 8:45	Registration
8:50 - 9:00	Welcome
9:00 - 10:30	Combinatorial approach for advanced chalcogenide characterization (Dr. Victor Izquierdo-Roca & Ignacio Becerril-Romero & Dr. Maxim Guc)
10:30 - 11:00	Coffee break
11:00 - 12:30	Photovoltaic Materials Characterization using Synchrotron Radiation (Prof. Dr. Claudia S. Schnorr)
12:30 - 14:00	Lunch at the Restaurant (main floor)
14:00 - 15:30	Advanced Optical Spectroscopy of Solar Cells: the Multiple Signatures of the Luminescence Signal (Dr. Laurent Lombez)
15:30 - 16:00	Coffee break
16:00 - 17:30	Design of solar cells: Selective Contacts (Prof. Dr. Joaquim Puigdollers)

### Wednesday 2<sup>nd</sup> October

#### Thin films Chalcogenides 1

9:00 - 10:20	INVITED: XRD and Neutron Diffraction Techniques (Prof. Dr. Susan Schorr)
10:20 - 10:40	Towards semi-transparent $\text{Cu}_2\text{ZnGe}(\text{S},\text{Se})_4$ thin-film solar cells (Dr. Raquel Caballero)
10:40 - 11:00	Coffee break
11:00 - 11:30	X-ray powder diffraction full profile analysis of complex multiphasic thin film chalcogenides for PV applications (Dr. Xavier Alcobé)
11:30 - 11:50	Performance modelling versus capacitance spectroscopy to observe the presence of defects in thin film solar cells (Dr. Johan Lauwaert)
11:50 - 12:10	Advanced characterization of interfaces in emerging thin film chalcogenide solar cells (Robert Fonoll)
12:10 - 12:30	Defect Detection in Thin Film Photovoltaic Modules by Using Electroluminescence and IR Thermography imaging techniques (Dr. Mahesh C. Sharma)
12:30 - 14:00	Lunch at the Restaurant (main floor)

#### Thin films Chalcogenides 2

14:00 - 14:45	INVITED: Recent developments in kesterite and emerging inorganic thin film photovoltaic materials (Prof. Dr. Maarja Grossberg)
14:45 - 15:05	6.2% efficient planar $\text{Cu}_2\text{ZnGeSe}_4/\text{CdS}$ heterojunction solar cells: synthesis and optimization (Ikram Anefnaf)
15:05 - 15:25	$\text{CuGaS}_2$ for its Potential Wide Bandgap Solar Cell Application (Myeongok Kim)
15:25 - 15:45	Graded bandgap engineering on S-Se kesterite solar cells (Jacob Andrade-Arvizu)
15:45 - 16:15	Coffee break
16:15 - 17:00	INVITED: Evolution and prospects of thin film photovoltaics (Dr. Paul Pistor)
17:00 - 17:20	$\text{In}_x(\text{O},\text{S})_y$ buffer layers for $\text{Cu}(\text{In},\text{Ga})\text{Se}_2$ solar cells (Dr. Wolfram Witte)
17:20 - 17:40	Current limitations of heterojunction $\text{CdS}/\text{Sb}_2\text{Se}_3$ thin film solar cells on substrate configuration (Pedro Vidal)

## Thursday 3<sup>rd</sup> October

### Innovative concepts in Si industrial technologies

- 9:30 - 10:15 INVITED: What does it mean to go for Shockley-Queisser limit on industrial level technology. Case of Si technology (Dr. [Juras Urbikas](#))
- 10:15 - 10:35 Impurity Gettering by Boron and Phosphorus Doped Poly-Silicon Passivating Contacts for High Efficiency Multicrystalline Silicon Solar Cells (Maxim Hayes)
- 10:35 - 11:00 Coffee break

### New concepts and disruptive ideas

- 11:00 - 11:45 INVITED: Advanced concepts for PV conversion (Dr. [Daniel Suchet](#))
- 11:45 - 12:05 Down-converting layers for the improvement of Schottky solar cells performance ([Przemyslaw Czarnecki](#))
- 12:05 - 12:25 Synthesis mechanism and crystal structure of bulk zinc germanium oxide nitrides ([Zhenyu Wang](#))
- 12:25 - 14:00 Lunch at the Restaurant (main floor)
- 14:00 - 14:45 INVITED: Ferrocene-based molecular diodes integrated in plasmonic nanocavities to directly convert light into electricity (Dr. David Duché)
- 14:45 - 15:05 Electrical characterisation of molecular diodes combined with plasmonic nanoantennas in order to convert light into electricity ([Esteban Sanchez-Adaime](#))
- 15:05 - 15:30 Coffee break
- 15:30 - 16:00 INVITED: Next generation transparent solar smart windows: Tech4Win strategy (Prof. Dr. [Alejandro Pérez-Rodríguez](#))
- 16:00 - 16:20 Wide-bandgap oxides for UV-selective transparent solar cells ([Alex López-García](#))

### Gala Dinner

## Friday 4<sup>th</sup> October

### Perovskites, organic and dye sensitized

- 9:00 - 9:45 INVITED: ([Prof. Dr. Mohammad Khaja Nazeeruddin](#))
- 9:45 - 10:05 Robust lead-free one-dimensional bismuth halides as potential absorbers for tandem solar cells (Dr. [Artem A. Babaryk](#))
- 10:05 - 10:35 Coffee break
- 10:35 - 10:55 Organometal Halide Perovskite thin films – Stability first, look for Efficiency later ([Vendran Kojic](#))

### Transfer to industry: technologies for advanced PV integration

- 10:55 - 11:40 INVITED: Upscaling of advanced micro and nanotechnologies for the production of made-to-measure photovoltaic modules ([Andreas Zimmermann](#))

### Round Table and Closing Ceremony

- 11:40 - 13:00
- Interactive Round Table (Dr. Marcel Placidi, Dr. Zacharie Jehl, Dr. Sergio Giraldo)
  - Best Student Presentation Award (*sponsored by Applied Sciences*)
  - Closing Ceremony
- 13:00 - 14:30 Lunch at the Restaurant (main floor)