

Physics of Solar Cells: from basic principles to advanced characterization
Les Houches School of Physics, 1-6 mars 2020

	Monday March 2	Tuesday March 3	Wednesday March 4	Thursday March 5	Friday March 6
Breakfast: 7.45 – 8.45 am					
Morning	(1) <i>General introduction 1</i> (8:45-10:15) Uwe Rau	(3) <i>Device engineering 1: Si interfaces and heterostructures</i> (8:45-10:15) Uwe Rau	(5) <i>Characterization by X-ray and neutron diffraction</i> (8:45am-10:45pm) Susan Schorr	(6) <i>Electron microscopy and related techniques 1: SEM</i> (8:45-10:45) Daniel Abou-Ras	(8) <i>Above Shockley-Queisser</i> (8:45-10:45) Daniel Suchet, Jean-François Guillemoles
	(1) <i>General introduction 2</i> (10:45-12:15) Uwe Rau	(3) <i>Device engineering 2: Perovskite interfaces and heterostructures</i> (10:45-12:15) Philip Schulz	(5) <i>Characterization based on scanning probe microscopy:</i> (11:15am-12:15am) Sascha Sadewasser	(6) <i>Electron microscopy and related techniques 2: TEM</i> (11:15-12:15) Daniel Abou-Ras	Wrap-up session (11:15-12:15)
Lunch: 12.30 pm					
Afternoon	(2) <i>Overview of technologies 1</i> (2:00pm-3:45pm) • Si (Etienne Drahi, 1h) • III-V (Andrea Cattoni, 45min)	(4) <i>Photonics 1: light management</i> Stéphane Collin (2:00pm-3:00pm)	Free time	(7) <i>Tutorial on physics of solar cells and advanced characterization techniques</i> (2:00pm-4:00pm)	Leave
	(2) <i>Overview of technologies 2</i> (4:15pm-6:00pm) • CIGS/CdTe/CZTS (Edgardo Saucedo, 1h) • Perovskites (Philip Schulz, 45min)	(4) <i>Photonics 2: optical characterization</i> (3:30pm-5:30pm) • Luminescence 3:30pm (Laurent Lombez) • Raman 5:00pm (Edgardo Saucedo)	Free time	(7) <i>Tutorial: open question session</i> (4:30pm-6:00pm)	
Dinner: 7.30 pm					
Evening	(A) Social session, Poster session 1 with drinks	(C) <i>Tutorial on modeling (1h)</i> L. Lombez, D. Suchet and JF Guillemoles	(B) Social session, Poster session 2 with drinks	Special dinner (savoyard)	

Program:

- (1) General introduction 1 & 2 (3h), **Uwe Rau**
- (2) Overview of technologies 1 & 2 (3h30):
 - a. Si (1h), **Etienne Drahi**
 - b. III-V (45min), **Andrea Cattoni**
 - c. CIGS/CdTe/CZTS (1h), **Edgardo Saucedo**
 - d. Perovskites (45min), **Philip Schulz**
- (3) Device engineering 1 & 2 (3h):
 - a. Si interfaces and heterostructures (1h30), **Uwe Rau**
 - b. Perovskite interfaces and heterostructures (1h30), **Philip Schulz**
- (4) Photonics 1 & 2 (3h):
 - a. Light management (1h), **Stéphane Collin**
 - b. Optical characterization: luminescence (1h30), **Laurent Lombez**
 - c. Optical characterization: Raman (30mn), **Edgardo Saucedo**
- (5) Characterization via electron microscopy and its related techniques (3h):
 - a. SEM (1h30): **Daniel Abou-Ras**
 - b. TEM (1h30): **Daniel Abou-Ras**
- (6) Modeling & Photonics (3h)
 - a. Characterization by X-ray and neutron diffraction (1h30), **Susan Schorr**
 - b. Characterization based on scanning probe microscopy (1h30), **Sascha Sadewasser**
- (7) Tutorials (3h30): **organizers and lecturers, prepared by Laurent Lombez and Daniel Suchet**
 - a. (2h): Tutorial on the physics of solar cells and advanced characterization techniques
 - b. (1h30): Open question session
- (8) Above Shockley-Queisser (2h):
 - a. Advanced concepts for PV conversion (1h), **Daniel Suchet**
 - b. An introduction to Multijunction solar cells (1h): **Jean-François Guillemoles**

Evening sessions:

- (A) Social session, Poster 1
- (B) Social session, Poster 2
- (C) Tutorial on modeling (1h): **Laurent Lombez, Daniel Suchet and Jean-François Guillemoles**