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Silicon solar cells with Low Environmental footprint and Advanced interfaces

SiLEAN - Deliverable report

D1.4 – SiLEAN Gender balance evaluation

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Project Scientific Abstract

The SiLEAN project deals with the development of advanced innovations to tackle the major drawbacks of silicon heterojunction solar cell technology, namely the high energy and material demand for Si wafer manufacturing, limited current generation, and the consumption of scarce materials like silver, bismuth and indium. Within the scope of the project, we will directly grow the wafers from the gas phase, apply alternative passivation concepts that show higher optical transparency, develop indium-free contact layers and apply silver and bismuth-free metallization with all-in-one cell interconnection and encapsulation. The project aims to achieve >25.5% solar cell efficiency and >23.5% module efficiency with 50% lower costs for Si wafers and contacting, as well as up to 75% lower carbon footprint. All processes applied allow upscaling to larger sizes as well as high manufacturing throughput. Eventually, the developments of SiLEAN will pave the way for a new, lean, generation of heterojunction solar cell technology that will both increment the energy conversion efficiency and unlock production at terawatt-scale.

Public summary

The SiLEAN consortium has set up a task force to monitor and (try to) suppress gender biases within the project. Its first task was to perform a critical review of implicit biases in lab infrastructure and facilities towards men, and to discuss the best practices and potential new strategies to reduce such identified biases. All partners responsible for experimental tasks performed a review of the work posts that are involved/used in the project, and all partners discussed the findings and possible solutions.

Although photovoltaics research is often assumed to be gender-neutral, all partners reported implicit biases that can limit, statistically, female's autonomy in the lab, their efficiency, and long-term health. All the negative biases that were reported result from the fact that male bodies are considered as the neutral reference when designing objects (height of work stations, size of gloves, ...) or infrastructure (ambient temperature, toxicity thresholds, ...). Fortunately, all of these biases were also already under resolution, or resolved and mostly impacting short moments in the daily tasks.

This exercise has enabled to openly discuss these issues, raise awareness, and effectively share solutions, leveraging on the fact that partners often share the same equipment and limitations.

For the second period of the project, the gender task force is going to make proposals for the general way of working, to monitor the decision-making process and ensure gender neutral and inclusive communication and meetings (i.e. setting best practices).

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Project partners:

#	Partner short name	Partner Full Name
1	FZJ	FORSCHUNGSZENTRUM JULICH GMBH
2	IMEC	INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM
3	TUD	TECHNISCHE UNIVERSITEIT DELFT
4	UNR	UNIRESEARCH BV
5	NXW	NEXWAFE GMBH
6	PVW	PV Works B.V.
7	GET	GraphEnergyTech
8	3SUN	3SUN S.R.L.
9	GUNAM	ODTÜ-GÜNAM

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