Definition of New Standard for Design Qualification of Hybrid Si/III-V and Translucent Planar Micro-Tracking Modules

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Insolight is a start-up founded to drastically boost solar module efficiency and make solar electricity more competitive

insolight

SOLAR PANELS WITH RECORD EFFICIENCY

EPFL

- Founded in **September 2015**
- Based at the Swiss Institute of Technology Lausanne, Switzerland (**EPFL**)
- 14 people, 16+ industrial partners

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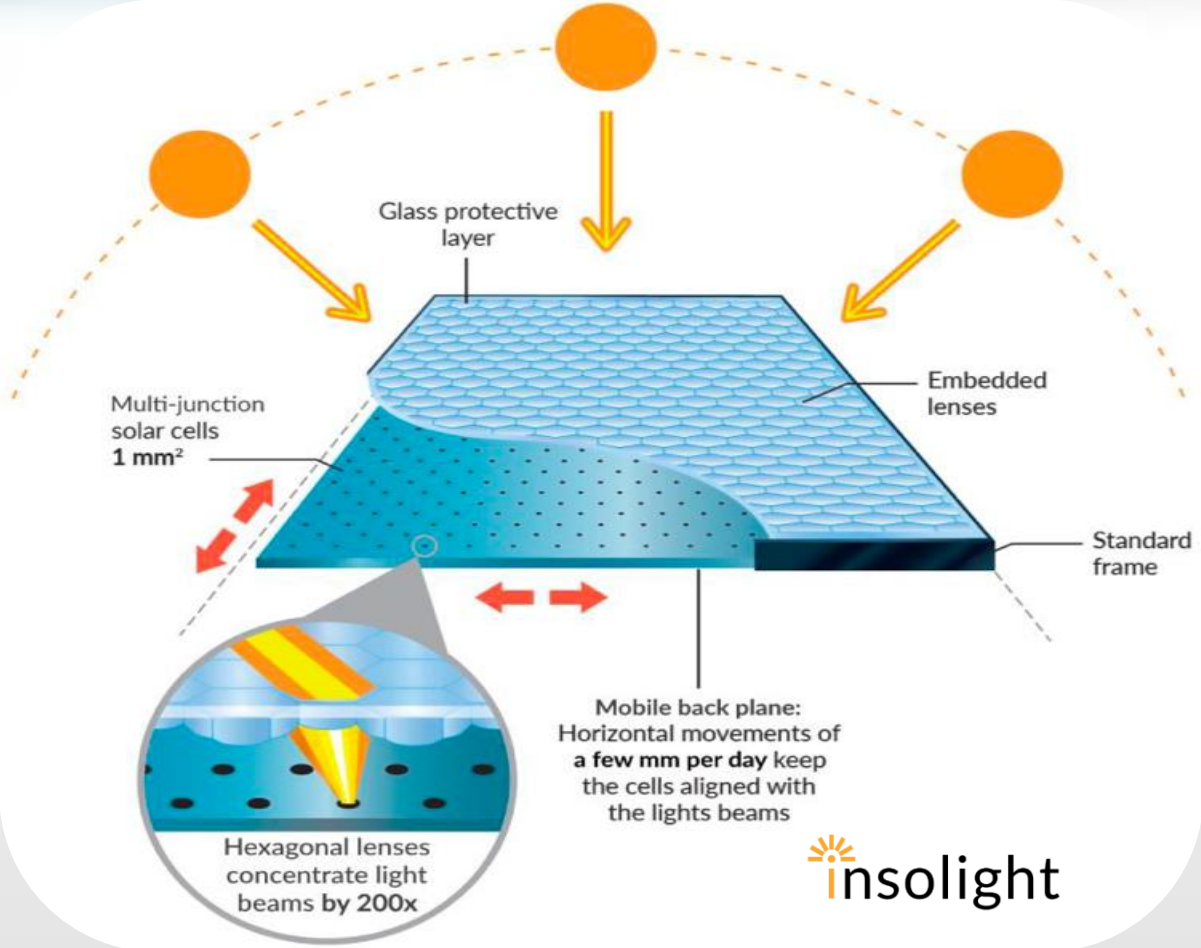
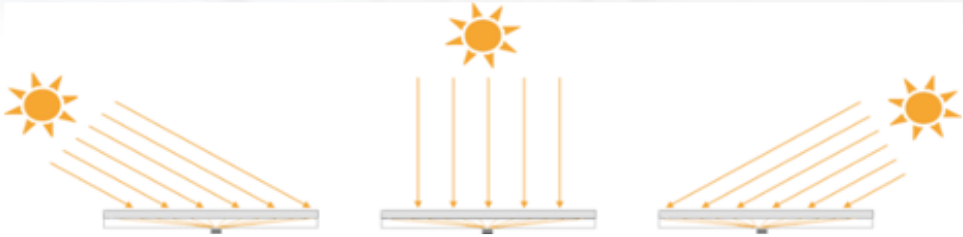
Static concentrator with embedded tracking





AOI << 0° AOI = 0° AOI >> 0°

- Sunlight is **concentrated** on an array of highly efficient micro solar cells (multi-junctions)
- **Integrated** micro-tracking (module not moving)
- Standard **flat panel** form factor mountable on any racks or rooftops

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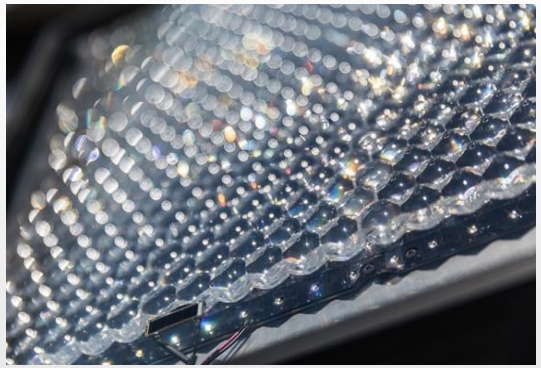
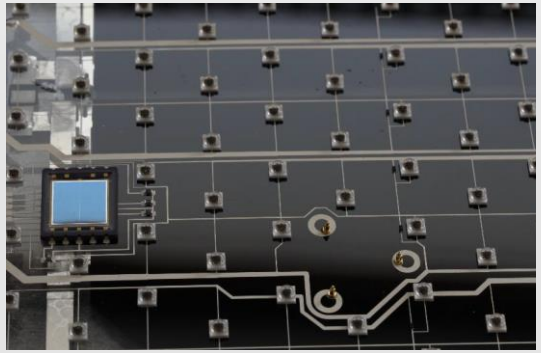
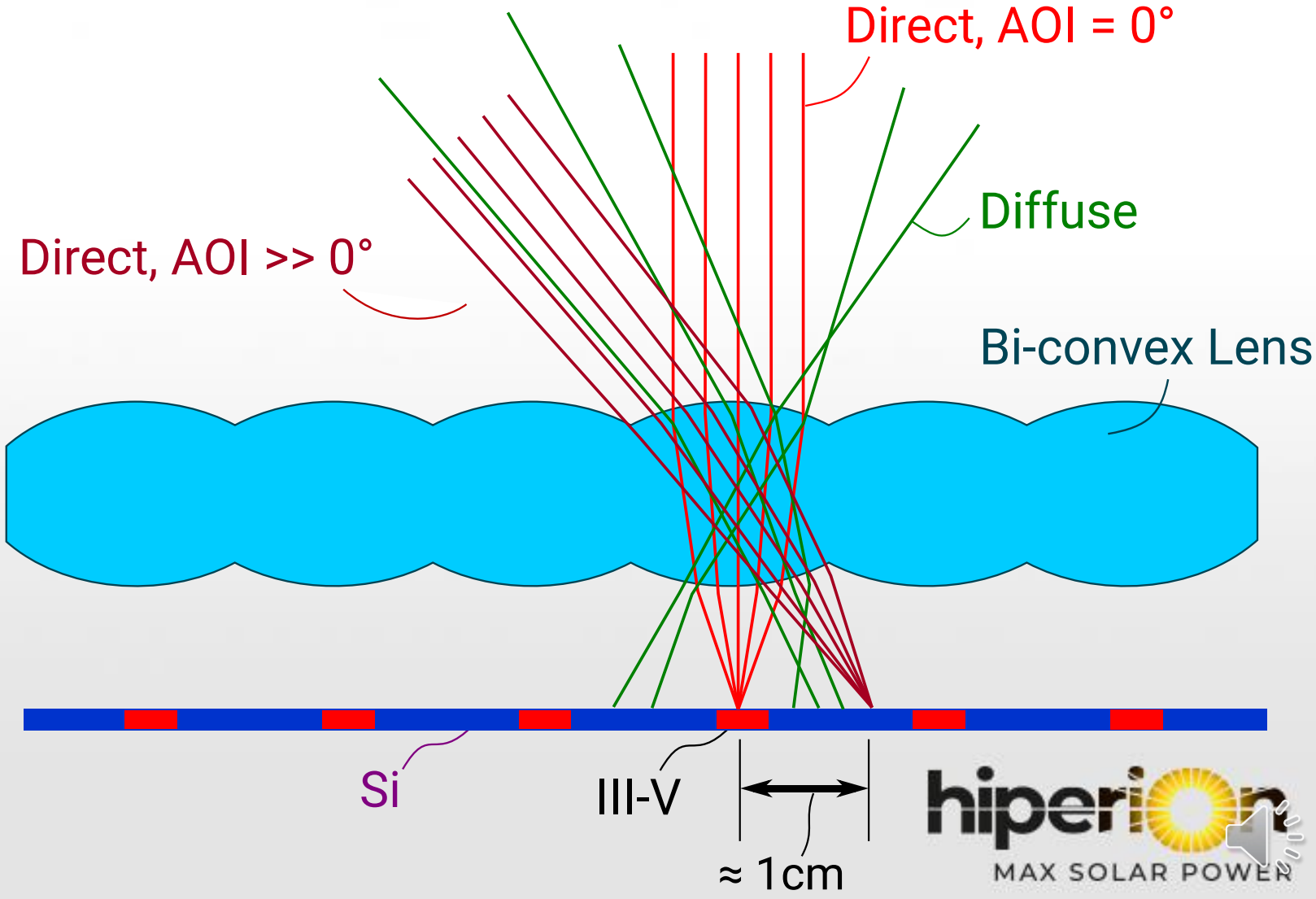
Hybrid CPV/PV or CPV/light Module



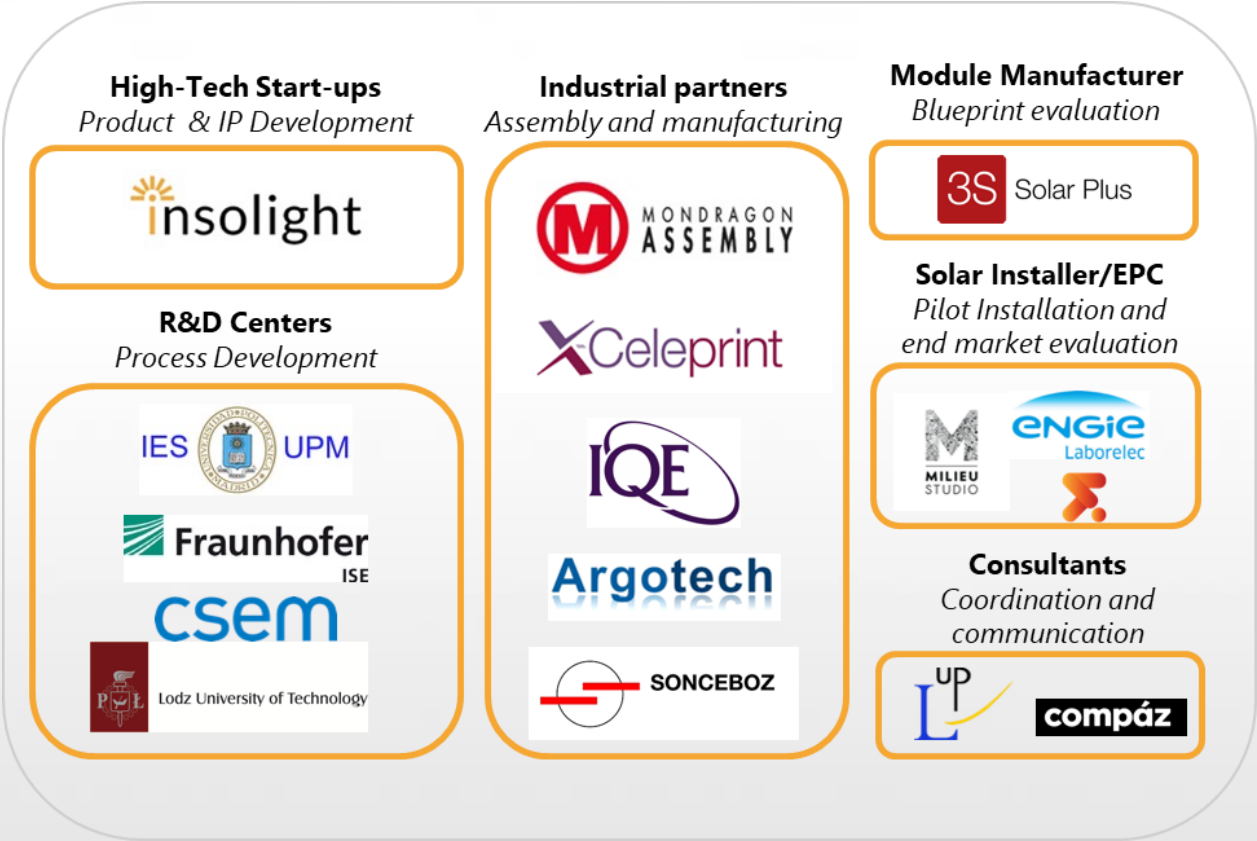




Hiperion Project (2019-2023)

- Trigger new investments in the EU PV industry:
  - Pilot line with a innovative process
  - Development of equipment fot PV technologies.
- Final product with performance and competitiveness.
- Qualification of the hybrid module design is a key activity within the project.

https://hiperion-project.eu



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Hiperion project pre-qualification objectives

- Define quality assurance tests based on existing flat plate and CPV/PV standards for the design qualification and type approval of Hybrid Si/III-V modules.
- IEC 62108 (CPV qualification) is a starting point for Hiperion module qualification.
- Pre-qualify the design of the Hybrid Si/III-V module developed for long term operation.
- Install and monitor pilot installations for performance evaluation and validation.

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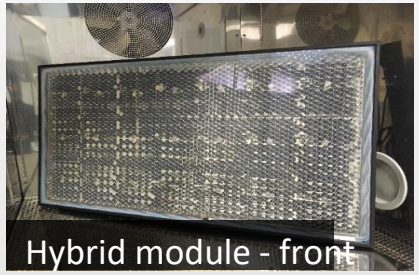
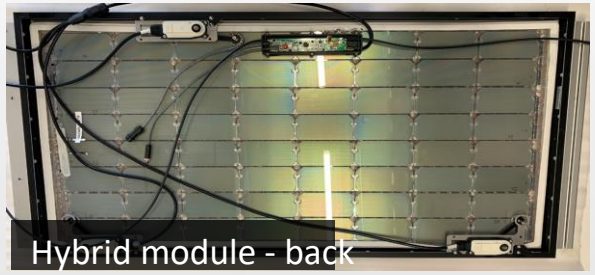
On the path to full qualification

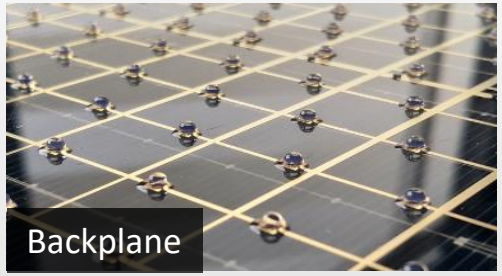
Hiperion modules shows so far reliable performance:

- 30 years of mechanical tracking functionality.
- Reliable backplane tested in Power Thermal Cycling, Humidity Freeze, Damp Heat.
- Stable performance of III-V cells under light concentration.


Hybrid module - front

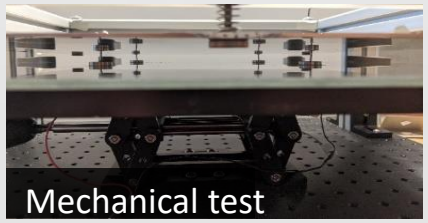

Hybrid module - back

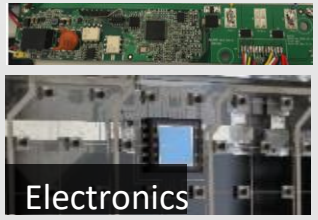

Backplane – Power TC

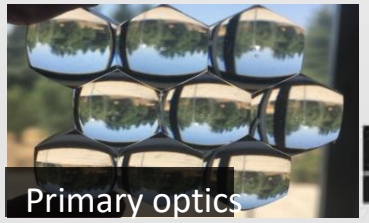

Backplane


Backplane


Actuator


Mechanical test


Electronics


Primary optics

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Thank you!