



Press release

## European project PeroCUBE

### Green light for perovskite-based wearables

**Neuchâtel, 11 May 2020 - EU H2020-funded project PeroCUBE aims at developing flexible, lightweight perovskite-based electronics, creating new commercial opportunities for the lighting, energy and telecom industries. Coordinated by CSEM, this consortium brings together 14 industrial and academic partners from 10 European countries.**

The mineral perovskite, already used in PV technologies, has a strong potential to dominate the OLAE (Organic and Large Area Electronics) market by providing advanced lighting solutions (PE-LED). The project represents a further progress for CSEM, which in addition to the existing PV activity, will work on perovskite light transmitters for the first time.

PeroCUBE has two main objectives: producing efficient, simple and low-cost light sources closer to natural light sources and supporting the development of more stable and low-cost solar panels. By combining these promising technologies, PeroCUBE seeks to develop a new generation of Visual Light Communication (VLC) and LiFi (light fidelity) standard, widening the scope for human centric lighting (HCL), data transmission, wearables and IOT applications that do not cause harm to humans nor the environment.

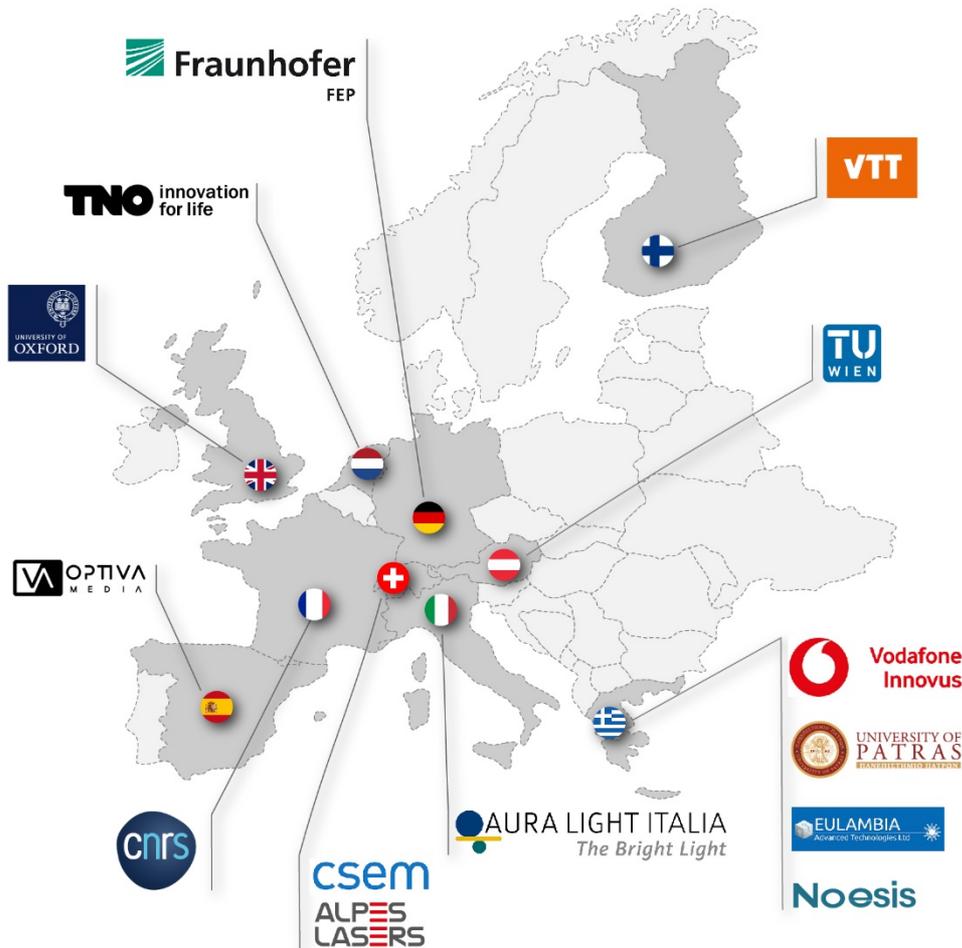
#### Leading the way in the LED and PV fields

The project will take the development of perovskite-based opto-electronic devices one step further, according to Dr. Sylvain Nicolay, head of the coating sector at CSEM: *“PeroCUBE develops large area lighting panels (PeLEDs) which offer distributed lighting in line with the human-centric lighting concept; such devices surpass OLEDs in terms of performance over cost ratio and will assist the European industry to maintain industrial leadership in lighting.”* This will open new doors for the industry, Dr. Nicolay adds: *“PeroCUBE will support the demonstration that the specific class of perovskite materials can indeed be used in commercial objects such as lighting panels and wearable devices.”*

#### A 14-strong European consortium

Coordinated by CSEM, the project consortium counts on partners' excellence in commercializing lighting fixtures and novel communication schemes (LiFi). This innovative collaboration, which engages the industry, academia and research organizations, represents the whole value chain and breeding ground needed to develop a new generation of perovskite-based devices. Already seen as a promising game-changer for the energy sector, this European consortium will allow the demonstration of the technology's viability as a commercial product. The project will last 42 months for a total requested EU contribution of EUR 5.6M.

Alpes Lasers, the second Swiss partner in the consortium, will develop the laser source. "IR light is used to analyze the behavior of perovskite surfaces during the manufacturing process," explains Dr. Antoine Müller, CEO of Alpes Lasers. "We are really excited that through this project our laser is contributing to a more sustainable and integrated future."



**Additional information**

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## About PeroCUBE

The **PeroCUBE** – High-Performance Large Area Organic Perovskite devices for lighting, energy and Pervasive Communication – consortium consists of 14 partners. Namely:

1. **CSEM SA (CH)** as coordinator and leader for the development of perovskite-based PV devices;
2. **VTT (FIN)** manufacturing approaches for Large Area flexible PeroCUBE devices and their integration into wearables;
3. **University of Oxford (UK)** for developing LED and PV device technologies;
4. **University of Patras (EL)** for tuning the perovskite upscaled industrial synthesis as well as providing improved perovskite structures;
5. **Fraunhofer Gesellschaft zur Forderung der angewandten Forschung (DE)** for electro-optical characterization of PeLED devices and their encapsulation;
6. **Aura Light Italia (IT)** as integrator of lighting applications, innovation, dissemination and IPR management;
7. **TNO (NL)** for Life Cycle Assessment and hazard and nanotoxicity assessment which will take into account the benefits as well as the potential risks of PeroCUBE devices across various life cycle stages of the product;
8. **CNRS (F)** for the optimization of the perovskite material;
9. **Vodafone Innovus (EL)** for light fidelity connectivity applications;
10. **Technische Universität Wien (AT)** developing micron- and nanoscale characterization of packaged PE-LED devices and PE-LED materials;
11. **Alpes Laser SA (CH)** for the laser source for perovskite characterization;
12. **Eulambia Advanced Technologies Ltd. (EL)** for the Perocube transceiver integration;
13. **Optiva Media (ES)** for the implementation and validation of the PeLiFi demonstration prototype;
14. **Noesis Technologies (EL)** for project, data and IPR management and exploitation support.

The PeroCUBE project has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement No. 861985 with an overall budget of EUR 5.6M.

<https://cordis.europa.eu/project/id/861985>

The project website is under preparation and will be launched in Q4 2020.



## About CSEM

### CSEM—technologies that make the difference

CSEM, founded in 1984, is a Swiss Research and Technology Organization (public-private partnership) specializing in microtechnology, nanotechnology, microelectronics, system engineering, photovoltaics, and communications technologies. Around 500 highly qualified employees work for CSEM in Neuchâtel, Zurich, Muttenz, Alpnach, and Landquart; each with a passion to help our partners achieve success in this rapidly evolving world.

Further information is available at [www.csem.ch](http://www.csem.ch)

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## About Alpes Lasers

Alpes Lasers is a Swiss engineering company pioneering advanced light sources, especially Quantum Cascade Lasers (QCLs) used in various applications such as gas detection. From our central location within Switzerland and Europe, we are dedicated to promote these technologies to customers active in a wide range of markets.

Further information is available at [www.alpeslaser.ch](http://www.alpeslaser.ch)

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