



PEROVSKIA SOLAR – A SOLAR CELL FOR EVERY DEVICE

Problem – Challenge

For a successful energy transition, highly efficient and versatile solar cells are a necessity. The vast majority of today's solar cells are silicon-based cells; their upper limit for energy conversion efficiency achieved in plain sunlight has constantly increased; in ambient light, the efficiency drops substantially. Thus more efficient solar cells, especially under poor lighting conditions, are urgently needed.

Solution

The solution could be perovskites, a class of materials with a unique crystal structure. Perovskite solar cells have reached record-breaking efficiencies exceeding 25% in just a decade of research and development. Another advantage: Owing to their extraordinary ability to absorb visible light, perovskite cells produce enough electricity even in low-light conditions such as homes and offices. And, last but not least: Silicon solar cells usually require high-purity monocrystals produced at high temperatures. Perovskite thin films, on the other hand, can be printed, with a much lower CO₂ footprint.

Perovskia Solar, an Empa spin-off, develops and manufactures digitally printed, customizable perovskite solar cells for original equipment manufacturers. Their vision is to enable a solar cell on every device and thus revolutionize the way we power our digital lifestyles.

Perovskia solar cells are tailored to integrate seamlessly with electronic devices, internet of things (IoT) and sensors. And being digitally printed in various shapes and sizes, their versatile solar cells offer high performance at low costs. The startup company is off to a good start: It already supplied a double-digit number of paying customers with their printed solar cells. Since then, the indoor solar cell company has been gaining ground worldwide, with customers in Japan, Korea, India, Europe and the US, mainly from the industrial IoT, and consumer electronics segments. From January 2024, the company started setting up a new factory in Aubonne (VD) with the goal of printing a million of its custom-designed perovskite devices a year. There are already plans to automate the back-end production by the end of the year. Perovskia is currently fundraising to scale its team and cater to the customer needs.

