



# To the Media

Stuttgart, Germany, April 18<sup>th</sup>, 2024

## **ZSW and First Solar announce strategic research partnership on thin film photovoltaics**

**Stuttgart-based Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW) and First Solar, Inc. (Nasdaq: FSLR) today announced a strategic research partnership focused on advancing thin film photovoltaics (PV). The partnership will not only focus on performance, but also on the potential to develop and optimize all-thin-film tandem technologies on a gigawatt scale.**

ZSW is a research institute with over 30 years of experience and knowledge in the field of thin film photovoltaics. Since its foundation, the main objective has been on materials development and processes for technology transfer to production. This has been pursued for decades for the CIGS thin-film technology developed by ZSW researchers. Since more than 10 years their process development is advancing additionally in the rapidly evolving field of perovskite photovoltaics, with a focus on scaling robust processes on both rigid and flexible substrates.

First Solar is a leading American solar technology company and global provider of responsibly produced eco-efficient solar modules advancing the fight against climate change. Developed at R&D labs in California and Ohio, the company's advanced thin film photovoltaic (PV) modules represent the next generation of solar technologies, providing a competitive, high-performance, lower-carbon alternative to conventional crystalline silicon PV panels.

In 2023, First Solar further strengthened its global leadership in thin film PV by acquiring Evolar AB, a European leader in perovskite technology. Evolar's laboratory in Uppsala, Sweden, has since become First Solar's European Technology Center, with approximately 30 of Evolar's R&D staff transitioning to First Solar, working in close collaboration with the company's team of about 60 scientists at its advanced research technology center in Santa Clara, California, and the development teams in Perrysburg, Ohio.

Tandem solar cells are widely recognized as the next generation of photovoltaics. This is due to better usage of the solar spectrum by splitting the absorption of the sunlight in a top and a bottom cell. Furthermore, as every tandem contains at least one layer of thin film solar cells, the development of thin films is of utmost importance to the next generation of solar technologies.

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Additionally thin film PV production allows for reduced supply chain challenges in parallel to optimized CO<sub>2</sub> footprints, both of which have gained increased attention over the last years. From the material perspective, compound semiconductors are ideally suited for tandems as the bandgap can be tuned by composition engineering to match the spectral needs of top and bottom cells in tandems.

Other potential areas of research include the optical adaption of the stacked cells and the specialized characterization techniques. The overall goal of this research partnership is to explore opportunities to make thin film modules more efficient by a better use of the solar spectrum.

#### **About ZSW**

The Centre for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW) is one of the leading institutes for applied research in the major topics of the energy transition: Photovoltaics, wind energy, batteries, fuel cells, electrolysis, eFuels, circular economy, policy advice and the use of AI for process and system optimisation. Together with industry, we pave the way for new technologies to enter the market. More than 300 colleagues and around 100 scientific and student assistants work at the ZSW locations in Stuttgart and Ulm. The ZSW operates a test field for wind energy and another test field for PV systems. The ZSW is a member of the Baden-Württemberg Innovation Alliance (innBW), an alliance of ten business-related research institutions.

#### **Media contacts ZSW**

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Production-like inline coating system at ZSW for development of absorbers for thin-film photovoltaics.

Photo: ZSW

Images are available from Solar Consulting or at <https://energie.themendesk.net/zsw/>.

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