WAVELABS Solar Metrology Systems GmbH is developing an LED-based solar simulator for solar modules. Based in Leipzig, Germany, WAVELABS will be working with the Fraunhofer Center for Silicon Photovoltaics CSP on the project. WAVELABS and Fraunhofer CSP have signed a letter of intent to collaborate on the product specifications and certification criteria for the new solar simulator, which is slated to enter production in early 2015.

The new simulator has been named the SINUS-2100 and will be based on the innovative technology found in the WAVELABS SINUS-220, a solar simulator for PV-cells. The SINUS-220 uses LEDs spanning a range of 21 different colours to provide nearly flawless efficiency measurements of solar cells. The objective of the joint project between WAVELABS and Fraunhofer CSP is to make perfect simulation of the sun a reality not only for PV cells but for solar modules as well. WAVELABS will make use of specifications originating from Fraunhofer CSP’s work on solar modules at its module technology centre.

LEDs are the only available technology capable of providing spectrum that is both accurate and remains stable over time while ensuring a homogeneous illumination of solar cells. With the SINUS-220, it is already possible to set the exposure to any desired length of time. Anything from just a few milliseconds up to continual illumination is possible. Especially when measuring high-efficiency modules, it will be essential in the future to have the ability to flash modules over extended exposure times. Since the proven LED technology already available in the SINUS-220 offers this capability, it will provide a solid foundation for WAVELABS’ new SINUS-2100 simulator for solar modules.

Jörn Suthues, CTO of WAVELABS, commented: "Fraunhofer CSP is one of the world’s leading institutions in the field of solar module research. We’re very pleased to have found such a top-notch partner to work with. I’m certain that together we will develop a solar module tester that will enhance the capabilities and competitiveness of solar module manufacturers by aiding in their research and development and improving production processes."

Prof. Jörg Bagdahn, head of the Fraunhofer Center for Silicon Photovoltaics CSP, remarked: "We are impressed with the innovative technology that WAVELABS has developed. We are happy to use our knowledge in the field of solar modules to help transfer technology used for cells to solar modules. We’re seeing great demand from our manufacturing partners in the industry for better solar simulation through the use of smart LED technology."
WAVELABS Solar Metrology Systems GmbH was founded in October of 2011 by Dr. Torsten Brammer, Jörn Suthues and Dr. Thankmar Wagner. Together, Brammer and Suthues have over 30 years of experience in photovoltaics at renowned institutions and private enterprises including the Fraunhofer Institute for Solar Energy Systems and Q-Cells AG. Dr. Thankmar Wagner has international experience in the fields of commercial and tax law, mergers & acquisitions, and finance. www.wavelabs.de

The Fraunhofer Center for Silicon Photovoltaics (CSP) conducts applied research in the area of crystallization, solar modules and solar wafers. With top competencies, Fraunhofer CSP explores the field of ingot manufacturing and material development. Moreover, the manufacture and assessment of solar cells and modules as well as electrical, optical, and micro-structural materials and component characteristics are also carried out. Ultra-modern research and analytical equipment is available for these activities. The Fraunhofer CSP is a joint activity for Fraunhofer IWM and Fraunhofer ISE.

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