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PV Cell and Module Measurement Techniques

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Message from the Guest Editors

In recent years, there have been revolutionary changes in the architecture of crystalline silicon modules for PV cells' realization. More sophisticated assembly schemes have been proposed to reduce cell-to-module losses related to dead zones, and resistive losses have been reported. Increasing the availability and efficiency of PV systems during the useful life of the photovoltaic field imposes monitoring and diagnostic techniques, which are capable of identifying and eliminating the anomalous conditions related to failure. As linear power performance warranties on modules have become commonplace in the PV industry, the power plants are scanned at regular intervals to identify underperforming PV modules for replacement.

Environmental measurements and electrical/thermal measurements of PV cells and modules play a fundamental role in modeling and optimizing the performance of photovoltaic cells and modules, both in the laboratory and in the field. In the latter case, the problem of reporting measurements under reference conditions is a crucial issue when analyzing long-term aging phenomena.



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