

Recent trends in solar cell development and characterization - an overview

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Sooner or later, the development of silicon solar cells with steadily increased efficiencies will encounter the “barrier” of the Shockley–Queisser limit; standard cells having efficiencies well beyond that can only be reached by tandem architectures. On the other hand, at the same time the cells continuously become cheaper, at least concerning the price per watt. Therefore, for solar cell companies to stay in the market, fundamentally new industrially feasible cell structures and manufacturing concepts are needed. In this talk I will review the relevant development efforts, considering the whole fabrication process from the ingot growth over the wafering to the cell-making. Also, extended requirements for quality checks are an issue, for which adapted characterization methods are needed; I will consider those as well.