

Workshop »Coatings for Energy Technologies«

Future challenges of PV cell manufacturing

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The development of wafer-based solar cells has increasingly relied on plasma-assisted processes. In the first generation Al-BSF cells, only the anti-reflective layer was deposited using PECVD coating. With the introduction of the second-generation PERC cells, passivation layers deposited by PECVD process became part of the solar technology. With the current third-generation Heterojunction technology, passivation and doping layers deposited by PECVD as well as TCO layers manufactured by PVD have become the standard.

Although the deposition processes used in the production of solar cells do not differ from those in the semiconductor industry from a physical point of view, the requirements for coating machines and the processes running on them are fundamentally different.

This talk aims to outline possible future developments in PV manufacturing and illustrate the requirements of PV manufacturing for the vacuum coating technology used.