

## *Second- and Third-Generation Photovoltaics*

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In my talk I will discuss three questions.

(1) Has solar photovoltaics become a mainstream energy source? I will review the growth of the international solar industry in the past 10 years and the simultaneous precipitous fall of solar panel prices.

(2) Which solar technologies dominate the market today? I will introduce the concepts of first, second and third generation photovoltaic technologies. First generation photovoltaics, based on crystalline silicon wafers, dominates the industry. Second-generation technologies, also known as thin-film photovoltaics, have a market share of about 5%. Third-generation technologies are still in the research phase.

(3) What is the outlook for new solar technologies? I will discuss the newest third-generation technology, so-called hybrid perovskites, which currently is actively researched in many laboratories worldwide. In this context I will also discuss the question of technical and economic sense of so-called tandem solar cells, in which more than one cell are stacked on top of each other in order to increase the spectral range of absorbed energy.