



## Predavanje

### Current and potential technologies for photovoltaic conversion

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First commercial solar cell was made in 1954 from crystalline silicon. Owing to the development of the semiconductor industry, this technology has since become dominant. Today, mono and polycrystalline silicon represent about 80 % of the photovoltaic market. However, technological development has brought the efficiency of these devices close to the Shockley-Queisser limit, limiting the possibility of significant further improvements. Hence, efforts are today mainly focused to reducing the production costs. One way is to use so-called thin film materials, which represent second generation of photovoltaic devices. They are usually deposited in thin layers to a low-cost substrate like glass, stainless steel or plastic. Although the production is significantly cheaper, these solar cells have much lower efficiencies.

Third generation of photovoltaics involves concepts and technologies for production of low cost solar cells which could even go beyond Shockley-Queisser limit. Some possible technologies like tandem and organic solar cells are reviewed, as well as some theoretical concepts like intermediate-band solar cells.

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**Vljudno vabljeni!**