Compared to the established solar cell technology based on inorganic semiconductors such as silicon, the production of electrical energy by organic photovoltaics offers a series of essential advantages. Flexible as well as large area film modules should be producible with very low material quantities, e.g., via printing processes. A prototype of such a flexible and very thin organic solar cell with an area of approximately 400 cm² is shown below.

We synthesize, develop and optimize novel organic semiconductors and dyes on the basis of thiophenes (oligomers), which we implement as photoactive component in organic solar cells of different types either by our own or in cooperation with other universities, institutions and companies. The efficiencies, which were achieved with our tailored materials on lab scale, are high level and partly represent record values:

- Oligomer solar cell by vacuum deposition: 12.0% (certified, multiple cell, record as of Jan 16, 2013) ¹
- Oligomer solar cell by vacuum deposition: 6.9% (7.2% certified) (single junction cell) ²
- Oligomer solar cell by solution deposition: 4.6% (single junction cell) ³
- Dye-sensitized solar cell (n-Typ): 9.6% ⁴
- Dye-sensitized solar cell (p-Typ): 1.3% (record as of Dec 4, 2012) ⁵
- Dye-sensitized solar cell (n/p-Typ): 2.4% (record as of Nov 29, 2009) ⁶

In the summer of 2006 Heliatek Ltd Dresden was founded as a spin-off company as a result of a cooperation with Technical University Dresden. Both universities are share-holders of Heliatek Ltd. The aim is the mass production of large area organic solar films via continuous vacuum-deposition. Currently Heliatek has 68 employees in Dresden and Ulm.


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