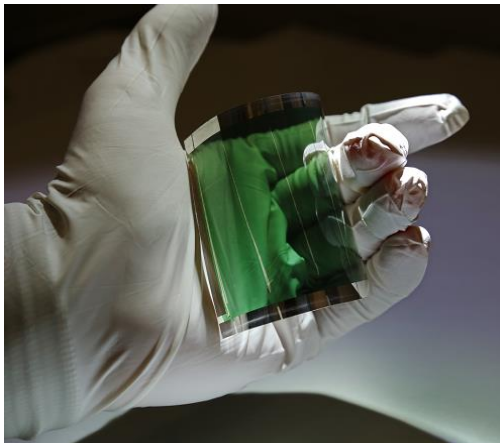
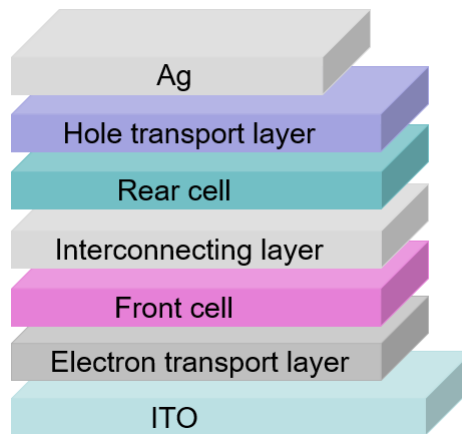


Master thesis

Organic tandem solar cells



Organic solar cell



Typical architecture of inverted
tandem solar cells

Motivation

The unique properties of organic solar cells (OSCs) have attracted more and more attention as enablers for novel applications. Future roll-to-roll large-area printing will enable the fabrication of mechanically flexible devices. To further improve the efficiency of OSCs, multiple photoactive layers with complementary absorption spectra can be stacked to improve light-harvesting.

Besides the quest for better photoactive materials, device engineering is an effective and important way to improve the performance of tandem OSCs, including the design of the intermediate connecting layer.

This master thesis will aim at high-performance OSCs by intelligent design of the devices.

Tasks

- Optimize and characterize electron transport materials in the intermediate connecting layer.
- Build single-junction and tandem organic solar cells inside an all-new cleanroom.
- Optimization of the device performance of organic tandem solar cells.
- Improve the understanding of the working mechanism of intermediate connecting layers in the tandem devices.

Requirements

- Basic knowledge on semiconductors.
- Work independently as well as in a team.
- Skillful and responsible use of technical equipment.

Research area

Organic photovoltaics

Orientation

Experimental

Educational Background

Electrical engineers,
Mechanical engineers,
Optics and photonics

Entry Date

Any time

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