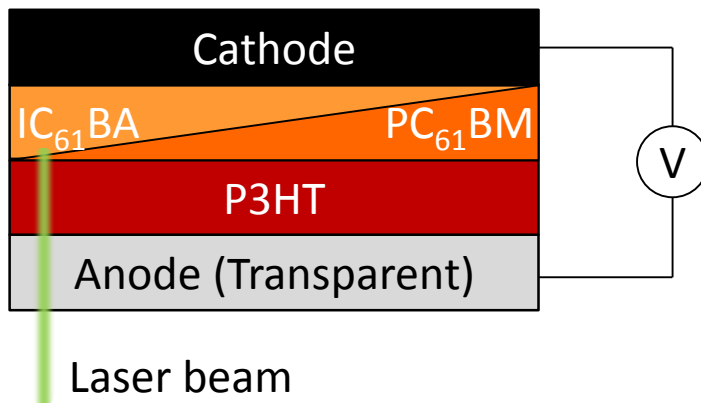


Bachelor's Project

Organic position-sensitive photodetectors



Motivation

The photo-voltage of an organic photodetector can be tuned by its active layer components. Typically, two semiconductors are used in the photoactive layer, for example a polymer (P3HT) and a fullerene ($PC_{61}BM$). For these materials the photo-voltage measured at the contacts of the device under illumination is 0.65 V. If $PC_{61}BM$ is replaced by another fullerene derivative ($IC_{61}BA$) the photo-voltage increases to 0.90 V. In this project, position-sensitive photodiodes with a horizontal gradient shall be fabricated. When illuminated with a laser spot, the photo-voltage of such a device would vary upon the excitation position. After calibration, the voltage can thus be used to determine the position of the laser spot. Such organic position detectors may provide advantages over the common (inorganic) technology through simple and low-cost fabrication, good resolution and large detection area. Such detectors have wide-spread applications for alignment applications, metrology and laser-triangulation.

Your Tasks

- Device design and fabrication in a clean room.
- Development suitable deposition techniques
- Device characterization

Your Profile

- Enthusiastic towards research, using a wide range of deposition and characterization equipment.
- Work independently as well as in a team
- Basic knowledge about semiconductors

Research Area

Optoelectronics,
Organic Semiconductors

Focus

Experimental Work

Educational Background

Electrical Engineering
Physics
Optics and Photonics

Entry Date

Now

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