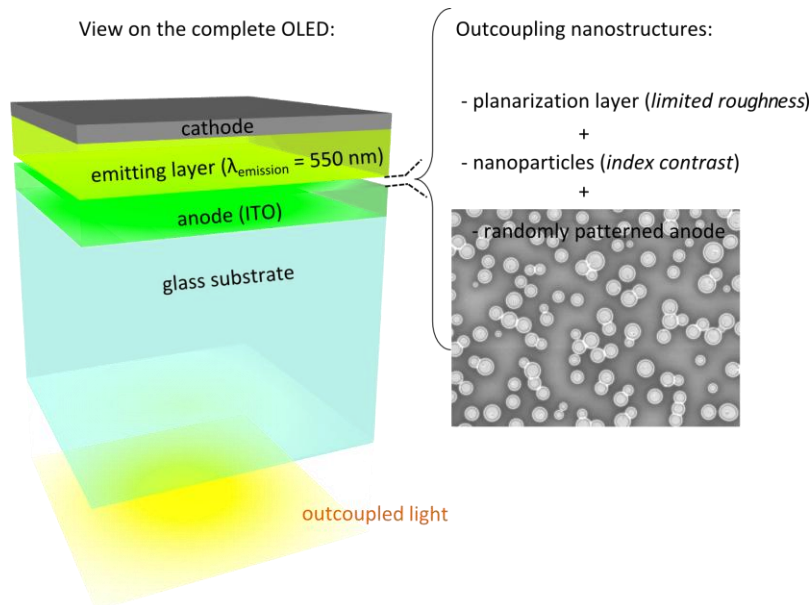


Diplom- | Master- | Studien- | Bachelorarbeit

## Random scattering nanostructures for light extraction in OLEDs



### Motivation

Organic light emitting diodes (OLEDs) are a promising alternative for lighting and display applications. One major limiting factor for the power efficiency is light trapping due to total internal reflection inside the anode and the emitting layer. Consequently, only around 20% of the generated light can leave the OLED. This value can be improved with the assistance of outcoupling nanostructures.

In this work, a scattering layer formed in the anode is used to extract the guided modes, leading to a better efficiency of the device and to isotropic emission profiles.

### Task

One of the tasks will be the fabrication and characterization of nanostructures, which includes dry-etching, lithography, deposition of nanoparticles, electron-microscopy and atomic-force-microscopy.

Later, these structures are introduced into the OLED stack and their effect on the device efficiency is determined by optical characterizations.

### Prerequisites

We are looking for a motivated candidate with a self-dependent working style and a marked taste for experimentation. Any experience with the fabrication of OLEDs or with work in a cleanroom environment would be an asset.

### Research areas

Optoelectronics,  
nanophotonics

### Location

Light Technology Institute  
KIT, Campus South

### Focus

Technological development  
and characterization

### Educational background

Physics, Electronics, Optics  
& Photonics

### Entry date

As soon as possible

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