

Topic for a Bachelor Thesis

„Comparison of the contact resistance change upon interface modification by gas phase deposition of Organic-Thin-Film transistors“

In recent years, new optoelectronic devices based on organic thin films have entered the market. Organic light emitting diodes (OLED), organic thin film transistors (OTFT) and organic solar cells (OSC) are the most prominent applications known for unique properties including flexibility and transparency. However, there are still challenges to improve the performance and efficiency of organic electronics. Therefore, it is important to get a fundamental understanding of the physical processes regarding the boundary between the anorganic contact and the organic functional layer.

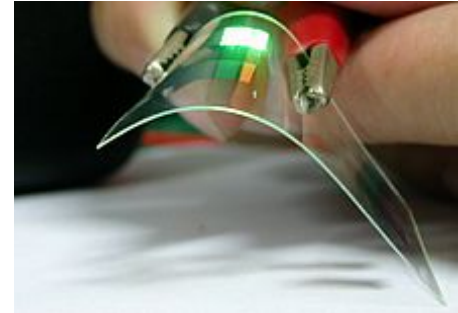


Fig 1: Example of an OLED.

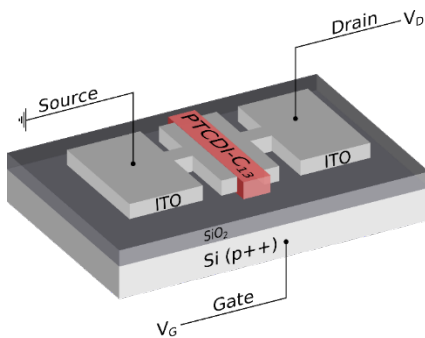


Fig 2: Sketch of an organic thin film transistor as will be used in the scope of the thesis.

Within the scope of the present bachelor thesis, organic thin film transistors will be prepared and their electronic properties are characterized. Therefore, different substrates will be processed from vacuum deposition and the transistor electrodes will be modified with a thin self-assembled organic monolayer (SAM) before the active material of the transistor PTCDI-C13 (red in Figure 2) is deposited.

Afterwards the electrical properties of the transistor are measured and will be compared between the different modifications of the electrodes.

What you should contribute:

- Interest and enthusiasm for scientific research
- Interest in learning the necessary tools to process thin films in vacuum systems
- Ability to work in a team
- Experimental skills
- Basic knowledge in data analysis

Sebastian Jung

✉ sjung@physik.rwth-aachen.de

☎ 28 A 505 📞 0241 / 80 27167

Julia Rittich

✉ rittich@physik.rwth-aachen.de

☎ 28 A 505 📞 0241 / 80 27167