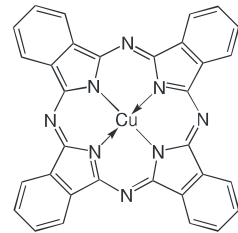


MASTER THESIS in Physics:

Growth and electronic structure of CuPc/ZnPc at a state-of-the-art UHV evaporation setup

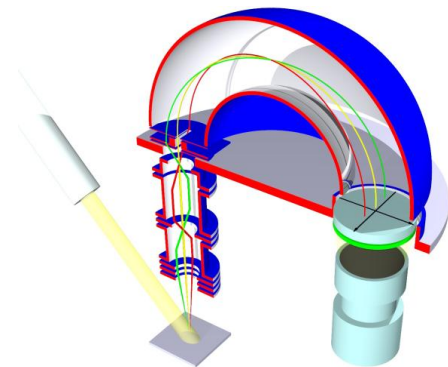
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In recent years new optoelectronic devices based on organic materials have entered the market. Especially organic light emitting diodes (OLED), organic solar cells (OSC) and organic thin film transistors (OTFT) are the most prominent applications known for unique properties including flexibility and transparency. Furthermore one can envision these organic devices to become superior to up-to-date devices with respect to performance and efficiency. The device performance of organic electronics is highly dependent on the electronic structure of the organic material and the alignment of the energy levels at the organic/inorganic-interface. Metal-phthalocyanines (MePc) are high-potential materials for the application in organic solar cells as a hole injection layer on top of the transparent electrode.

Within the present master thesis, functional thin films of CuPc and ZnPc have to be prepared on different substrates at a state-of-the-art ultrahigh vacuum (UHV) evaporation setup. By modifying the process parameters, it will be possible to tailor structure as well as morphology of the thin organic films and thus to optimize the electronic properties for the desired application. The correlation between these physical quantities will be investigated in a combination of advanced analysis methods such as Atomic Force Microscopy (AFM), X-Ray Diffraction (XRD) and Photoelectron Spectroscopy (XPS/UPS).



What you should contribute:

- Interest and enthusiasm for scientific research
- Ability to work in a team including attendance in group meetings and institute seminars
- Experimental skills
- Profound knowledge in data analysis

More information on organic thin-film applications and the work of our group can be found:

<http://www.physik.rwth-aachen.de/institute/institut-ia/forschung/organische-schichten/publikationen/>