TECHNISCHE UNIVERSITÄT CHEMNITZ
Technische Universität Chemnitz, Fakultät für Naturwissenschaften, Institut für Physik, 09107 Chemnitz

Bachelor / Master thesis available
Topic: Development of organic light emitting diodes and their response to external stimuli

Motivation

Organic light emitting diodes based on reverse intersystem crossing (RISC) have great potential in flat-panel displays and solid-state lighting due to their high internal quantum efficiency. Furthermore, those materials exhibit sensitivity to external stimuli, in particular to magnetic fields, which rises their potential for sensing applications. To develop high quality devices on arbitrary geometries the deposition from solution onto flexible substrates is crucial.

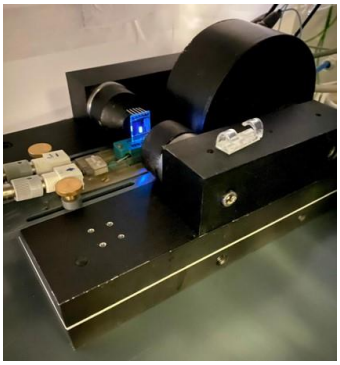

Fig. 1 Organic magnetoconductance (OMC) measurement setup with a blue emitting OLED.

Research task

The thesis will involve an extensive literature search on techniques for producing highly efficient flexible OLED structures. Two primary methods, spin coating and thermal evaporation, will be used for the production of flexible OLEDs. The evaluation of optoelectronic properties and the investigation of the OMC effect will be conducted, with a particular focus on understanding how bending and stretching influence the OMC effect.
For a bachelor thesis the task will be shortened accordingly.

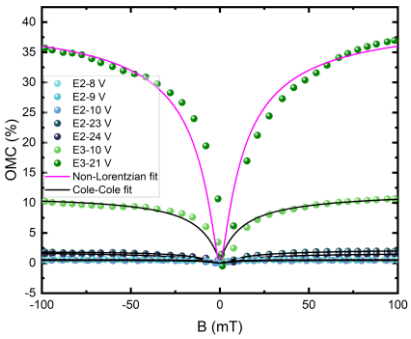

Fig.2 OMC measurement result for rigid OLED structures after a special conditioning procedure (application of high current density for 30 min)

You will be part of our research team, where you will attend our weekly meetings and present as well as discuss your progress.

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