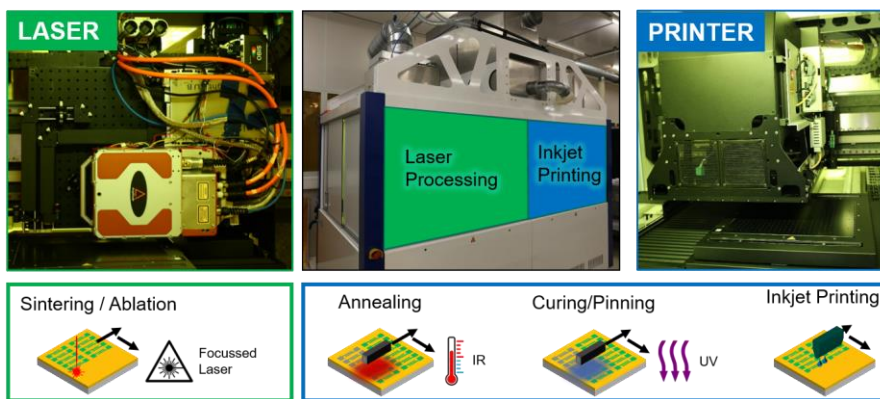


Bachelor Thesis

Laser assisted fabrication of inkjet-printed electronic devices

Motivation

Inkjet printed silver is an important material for inkjet-printed electrodes of thin film devices. However, drying and annealing usually happens on a hotplate or in an oven. Further processing steps require re-alignment of samples. The goal of this thesis is to investigate usage of a machine that has drying and sintering capabilities included, removing the need of using additional equipment during fabrication. Results will be compared with classical approaches.

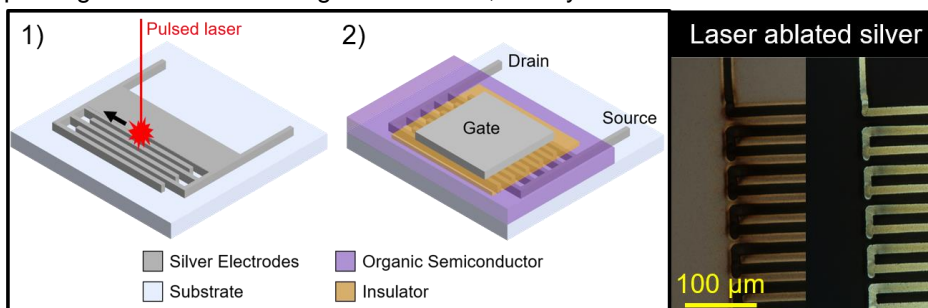


Tasks

The work is experimentally driven in a clean-room environment. The work includes:

- Design of test structures for inkjet and laser fabrication
- Printing of commercial silver ink using industrial printheads
- Investigation of drying and / or sintering of the printed material
- Characterization of conductivity for different processing parameters
- Surface analysis using SEM / AFM, especially for laser sintered films.

Finally, the thesis will include preparation of a working transistor device using printing and laser technologies combined, ideally on flexible substrates / foil.



Requirements

Previous experience with Origin, FreeCAD and CorelDraw beneficial, but not required.

Commute to the lab in Heidelberg required.

Research Area

Printed electronics and opto-electronics

Focus

Experimental

Degree Program

Electrical Engineering
Physics
Material Science

Starting Date

As soon as possible

Location

InnovationLab
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