

Bachelor Thesis

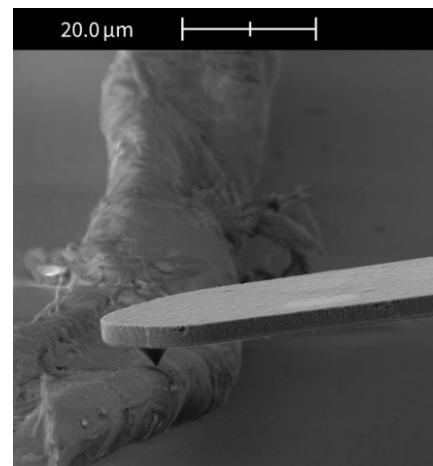
Motivation:

The urge for more environmentally friendly materials in our future has been encouraging the arising of innovative paper-based applications. The different fields of paper applications such as electronics, sensor technology, or microfluidics are promising and gain more and more meaning in the fast analysis of chip size. In order to successfully shift newly developed paper-based products into the market, the relationship between the paper properties and its functionality must be well understood.

To better understand the morphology of paper fibres and the variety in their mechanical properties, examinations over different length scales and with various characterization techniques are necessary. Here, correlative microscopy can bridge the gap between the confined scanning abilities of atomic force microscopy and the lack of mechanical characterization capabilities of scanning electron microscopy. Additionally, fluorescence microscopy can provide maps of the material distribution on the fibres.

In collaboration with Quantum Design, we aim to investigate single paper fibres on a large scale with correlative microscopy including atomic force microscopy and scanning electron microscopy with the additional help of fluorescence microscopy. The goal of the bachelor thesis is to thoroughly understand the mechanical properties of different layers of paper fibres.

We seek a motivated student of Materials science, Physics or Mechanical Engineering who wants to accomplish his/her/their thesis externally in the exciting industrial environment of Quantum Design, a company located in the industry section of Darmstadt.



If you are interested, please contact Catarina Ribeiro (catarina.ribeiro@tu-darmstadt.de) or Dr. Christian Dietz (dietz@pos.tu-darmstadt.de)