

Design and Construction of a Particle Fractionation Unit

Current trends in paper and pulp production aim on product diversification covering new markets, i.e. fibre-plastic compounds. Separating fibres and fines (i.e., particles smaller than $200\mu\text{m}$) may become a crucial process step in future. Answering to this future need, we developed a novel fractionation device in a collaborative project with industry.

First studies aimed on the investigation of key process parameters by means of optical imaging, resulting into a rectangular channel design (Figure 1), which however is not best suited for industrial use. Following we will re-design the fractionator for industrial use.

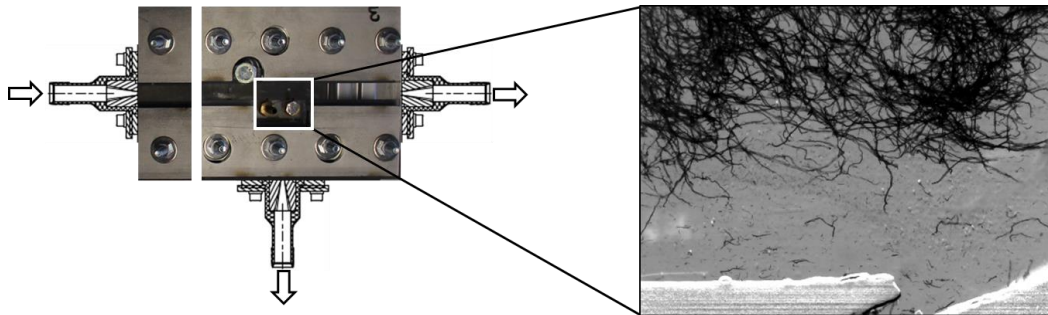


Figure 1: Illustration of the fractionation device.

The **goal of the construction thesis** is to implement a single-fractionation line favoring industrial use. The student will need to prepare construction drawings using CAD, preferably Autodesk® Inventor. Prior skills from technical high-school are of advantage. The final fractionator will be evaluated by means of experimental trials.

We offer

- high industrial and scientific relevance (e.g., novel separation process with future application in paper and pulp industry)
- desk and office space

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The thesis should start in August 2017.