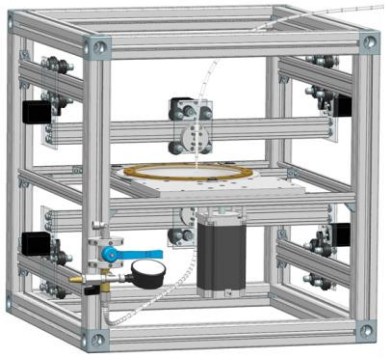
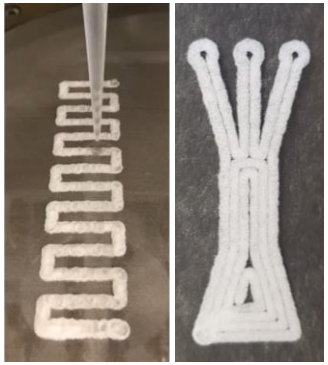
Fibre Printer

Additive manufacturing of (biobased) fibre materials





Status quo

Paper is a mass product which, due to the process, cannot be produced locally with individual properties. However, the unique combination of the principles of paper production with additive manufacturing makes this possible and can also be transferred to other fibre types.

Our technology: Fibre Printer

The additive manufacturing principle of the developed wet laid process enables the production of 2.5-dimensional components from a wide variety of fibre materials. The fibres, which are in suspension, are applied layer by layer to a fabric through a movable nozzle and the liquid is drawn off through a vacuum. The shape, layer structure and topography of the components are already predetermined on the PC.

Benefits

- ✓ Design properties like strength, fluid transport or porosity on your PC
- ✓ Locally selective fibre application
- ✓ Various fibre materials can be used

Application possibilities

- Tailor-made anisotropic fibre mats for fibre composites
- Application of reinforcement fibres e.g. recycled carbon fibres
- Complex parts for paper-based microfluidics by layered structures and fibre orientation

Commercialization opportunities

There are various possibilities for cooperation between the industrial partner and TU Darmstadt: from an exchange with the know-how carriers of the technology up to a close cooperation in case of further development needs. The technology is protected by intellectual property rights and can be used by the industry partner after a sale or licensing agreement.

Current stage of development Technology Readiness Level (TRL)

9	Product ready to launch
8	
7	Prototype
6	
5	
4	
3	Proof of Concept
2	
1	Idea

The technology development is at Level 3: A special fibre printer was set up and the proof of concept was provided. Extensive parameter studies are currently being carried out.

Your contact partners at TU Darmstadt

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