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## Fibre Printer – Additive Manufacturing of Highly Specialized Paper

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### Abstract

In general, papermaking is an additive manufacturing process, but the deposition of the fibres cannot be specifically influenced. Additive manufacturing technologies, such as 3D printing, on the other hand, can apply material at a predefined position. The fibre printer combines both processes, so that fibres can be deposited at predefined positions by a nozzle <sup>[1,2]</sup>. This enables us to produce highly specialized paper in small quantities. The aim is to use precise process knowledge of fibre printing to design and optimize paper on the PC for a wide range of applications. With these possibilities, for example, paper-based composite components with optimally arranged fibres can be produced. Filters can be optimized by layering different materials. Applications in medical diagnostics with paper-based microfluidics are possible as well.

### References

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### **KEYWORDS:**

Additive Manufacturing  
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### Biography



ZELLCHEMING-CONFERENCE

CELLULOSE-BASED MATERIALS –  
FROM SCIENCE TO TECHNOLOGY

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**Frederic Kreplin:**

Completed his Bachelors and Masters degree in Mechanical and Process Engineering at TU Darmstadt (2011-2017). Since 2017, he is research assistant at the chair of Paper Technology and Mechanical Process Engineering (PMV) at TU Darmstadt. In his PhD studies, he focusses on innovative applications for paper by new paper manufacturing processes such as fibre printing.

