Project title:	CarboScreen - Monitoring Solutions for Carbon Fibres
Partner:	Institut für Textiltechnik der RWTH Aachen
Duration:	01/2023 – 12/2024
Funding Agency:	Projektträger Jülich – EXIST Forschungstransfer I

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Mission Statement

Reinforcing fibers such as carbon fibers can only develop their full potential if the fibers are not damaged during production and processing. However, optical monitoring of the processes according to the current state of the art is not sufficient for most fiber production processes, e.g. to detect structural defects. This deficit is particularly evident in the complex carbon fiber manufacturing process. Currently, no sensor systems are commercially available for monitoring the quality of carbon fibers (CF) in the manufacturing process. This results in the risk of reduced fiber quality and, in extreme cases, plant fires. In order to be able to guarantee sufficient product quality, the maximum production speed is limited to approx. 12 - 15 m/min. The production potential of the car fiber production lines is therefore currently only utilized to 30 - 40 % due to the process. As a result, the selling price for carbon fibers, at an average of 20 €/kg, is well above the tolerable costs for mass applications.

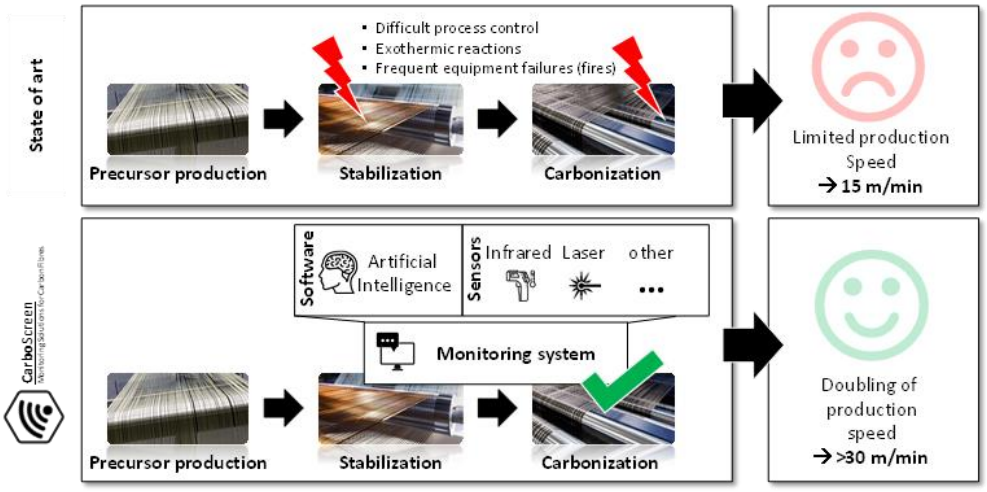

Figure 1: Mission statement of the founding project CarboScreen

Approach

The business model of the EXIST-Forschungstransfer “CarboScreen” therefore includes the development, production and sale of a multimodal, sensor-

based monitoring system to carbon fiber manufacturers. In addition to mechanical fiber damage, the system will also monitor relevant parameters such as the degree of stabilization inline. The core competencies lie in the adaptation of various sensor systems to the carbon fiber manufacturing process and the development of an AI-based software platform. The software platform links the measured sensor data with process know-how and derives recommendations for action for the plant operator. The combination of sensor, fiber and process know-how to derive recommendations for the customer is the company's unique selling point. The start of the EXIST-project is planned for January of 2023.

Acknowledgement

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Bundesministerium für Wirtschaft und Klimaschutz

Projektträger Jülich Forschungszentrum Jülich

EXIST Existenzgründungen aus der Wissenschaft

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