Presentation of the innovation space

BIOTEXFUTURE

Bio-based textiles from sustainable raw materials

1. Background to the funding programme

BIOTEXFUTURE is one of four innovation spaces supported by the German Federal Ministry of Education and Research (BMBF) as part of the "National Research Strategy Bioeconomy 2030" through the funding measure "Innovation Spaces Bioeconomy". By means of close cooperation between science and industry, the new "Innovation Space" funding format offers the opportunity to initiate basic research in a structured manner and to later practically implement results in a targeted way. Hence, structural technical and economic changes and societal transformation to bioeconomy can be advanced in the best possible way to initiate visibel effects.

This is all the more important, due to the fact that some German regions face fundamental economic challenges in regard of the so-called „coal phase-out“ until 2038 and therefore need to expand renewable energy capacities and explore environmental friendly, bio-based new raw materials to finally establish new industry settlements and create jobs in the next ten to fiveteen years.

Each innovation space includes several research projects collaborating to achieve the overall vision of the respective innovation space. The funding instrument thus links the requirements of an industry, in our case the textile sector, with the national transformation to bioeconomy in Germany.

2. Mission of BIOTEXFUTURE

Of 120 million tons of fibers processed annually worldwide in the textile and apparel sector, around 88 million tons (73%) are man-made fibers. Forecasts predict a further increase in this preponderance of synthetic material over natural raw materials in the upcoming years. Currently, 91% of the plastics used are petroleum-based (petroleum-based manmade fibers) and only nine percent are from renewable raw materials (bio-based manmade fibers). However, the production of plastics from petroleum causes numerous ecological, social and economic problems worldwide. In addition, a variety of environmentally harmful chemicals are still used in textile production, which are supposed to be legally banned in the upcoming years. Therefore, enviromentally friedly alternative are urgently needed in the textile sector.

For all these reasons, the textile industry requires a comprehensive turnaround of materials, production and processes. However, this transformation is currently still hindered by various technological, economic and social obstacles. The bio-based man-made fibers, currently being researched, are uneconomical to produce or they do not meet the technical and quality requirements of the textile sector.

Furthermore, due to a heterogeneous and fragmented market, bio-based man-made fibers can hardly be used in the currently established process and supply chains. In combination with a lack of social awareness, this results in the following objective for BIOTEXFUTURE.

3. Vision and Objectives of BIOTEXFUTURE

BIOTEXFUTURE's vision is to transform the textile value chain from petroleum-based to bio-based. Based on this vision, three core objectives emerge:

1. BIOTEXFUTURE develops a bio-based raw material base for plastics that is holistically sustainable (economic, ecological, social).
2. BIOTEXFUTURE maps the application in the textile industry from the biopolymer to the manufacturing process of the complete textile.
3. BIOTEXFUTURE addresses the overall societal change towards a bioeconomy from a social and economic perspective.

4. Structure of the innovation space

The BIOTEXFUTURE Innovation Space is a publicly funded research program consisting of several independent research projects collaborating to achieve the overarching vision. At the start of the Innovation Space, the following research priorities have been defined:

- Substrate/material development
- Product/process development
- Textile finishing
- Circular economy
- Social development for the bioeconomy

In addition, new projects - and thus new partners – have been added during the term of BIOTEXFUTURE. Part of the project portfolio is a socio-scientific transfer project to accompany the technical reseach projects and to ensure the communication and wider economic and societal transfer of the results (e.g. through real-labs). Finally, a project management office is responsible to implement the professional program management.

5. Timeframe

The Innovation Space funding will run for a total of five years from November 2019 to December 2025.

6. Management

The Institute of Textile Technology at RWTH Aachen University, represented by the Institute Director Prof. Dr. Thomas Gries, manages BIOTEXFUTURE together with the Institute of Sociology (Prof. Dr. Roger Häußling) from a research perspective. The adidas AG leads BIOTEXFUTURE as industry partner.

7. Contact

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