

# **NANOHYB - Hybrid Textile Structures based on Nanofibres with Barrier Effects against Bacteria and Viruses**

Collective Research networking CORNET - 28<sup>th</sup> Cornet Call



**Project partners:** STFI - Sächsisches Textilforschungsinstitut e.V. , Chemnitz  
SVUM a.s., Čelákovice  
VUB a.s., Ústí nad Orlicí

**Project Coordinating Association** Forschungskuratorium Textil e. V. - FKT (Germany)  
**Participating Association** CLUTEX - cluster technical textiles (CZ)

**Solution time:** 07/2020 – 06/2022

## **Project intention and goals**

The main intention of the project is to prepare textile composite structures containing nanofiber layer, the applications of which will be especially aimed at medical products, PPE and special functional clothing. The layer of nanofibers will be prepared by electrostatic spinning - Nanospider™ technology.

Two main project goals:

1. To prepare hybrid structures (substrate, nano-layer, cover layer) based on textile components made of different polymers.
2. To solve the critical factor of usability of nanofiber layers in composite structures - i.e. sufficient adhesion between the substrate, the nano-layer and covering material, since in particular cohesion of the layers fundamentally affects the processability of combined structures into final products. To increase the adhesion of individual layers even without any adhesives the possibility of surface treatment of individual layers with plasma will be investigated.

## **Expected results**

### **1) *Textile composite structures for medical products and PPE***

In cooperation with German partner the possibility to enrich new structures with active substances with antimicrobial and antiviral properties will be investigated and evaluated. Such structures are intended to be used for disposable PPE in case of pandemic situations especially.

### **2) *Textile hybrid structures for special clothing***

Textile structures will be designed for special clothing as barrier membranes. They will consist of woven or knitted substrate to which a nanofiber layer will be integrated. The intention is to prepare several variants designed as barriers for clothing for warm or cold environments.