

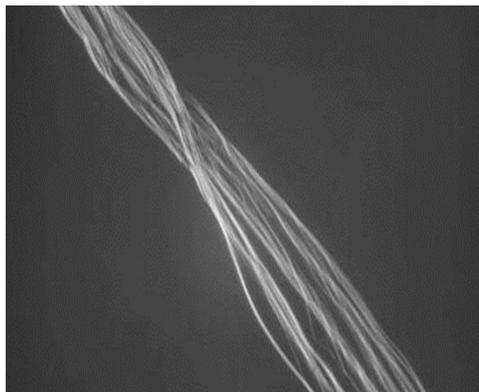
## Research Studio

# Smart Technical Embroidery

The Research Institute for Textile Chemistry and Textile Physics of the University Innsbruck, with its focus on textiles chemistry and physics is unique in Austria. Due to the special competences in cellulose fibre research, textile chemical and physical research, the institute keeps a competitive position among the comparable institutions in Europe.

Interdisciplinary fundamental research for textiles is a particular strength of the Institute, which also marks a strong difference to existing competitors in the field.

During its specialised research activities the institute already executed specific co-operations with companies active in the field of embroideries.



Micrograph of a fibre



Knee model

The research in the field of technical embroideries builds on the competences of the institute:

- textile materials, polymer chemistry and polymer modification
- textile physics and mechanics
- textile chemistry and chemical modification of assemblies
- production and processing technology
- sensors and electrical devices / electrochemistry, corrosion
- scale up and material testing.





There is a significant growth in demand of technical textiles for a large variety of products and markets e.g. composite materials.

The pressing need for a coordinated high level research activity, including transfer of basic results into products, prototype development and assistance in product scale-up can be managed in an ideal way through the Research Studio Smart Technical Embroidery.

The activities of the research studio will focus around two main activities which both base on existing basic know-how and expertise available at the institute:

- Composites and 3D-structures: Embroidery as structural element

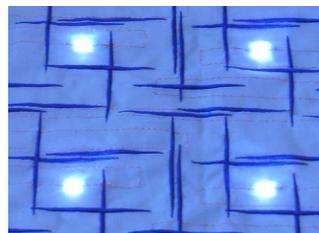


Composite Stickerei

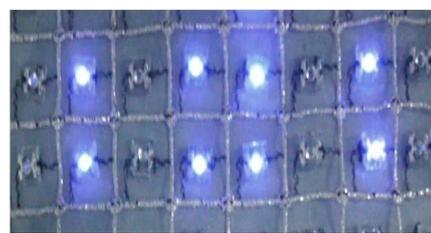


3D -Stickerei

- Molecular and electrical functionality: Implementation of functionality in embroidery: molecular chemical functionality (e.g. indicator dyes, pharmaceutical products); electrical functionality (e.g. sensors, optical elements)



LED-Himmel



LED-Matrix

The Research Studio „Smart Technical Embroidery“ (RS-STE) will utilise research results of the institute and advance them into important technology transfer topics for utilization by regional embroidery producers. The planned activities will establish the Research Studio as a major scientific partner close to new market applications.

## RS-STE

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