

# Project Proposal

For the Degree Program in Sustainability Studies

## Recycling of metallized textiles

**Duration:** 5-6 Months (27,5 ECTS = 825 h)

**Location:** (Albstadt, Lab of Textile Testing and Surface Functionalization, Haux building)

**Possibilities for a follow-up Master's Thesis:** yes, explicitly wanted

**Potential Cooperation Partners** (if applicable): Shieldex (Bremen), Korn Recycling (Albstadt), textile finishers (Albstadt, Baden-Württemberg)

**Supervisor / Contact:** Prof. Dr. Jörn Felix Lübben (luebben@hs-albsig.de)

### **Aim of the project:**

*Recovery* of the metals used for the coating (e.g. silver, nickel, gold), *preservation* of the underlying textile fabric, *Life Cycle Analysis* (LCA) for the recycled products

### **Project description:**

The first step is to test whether metals can be removed from the textile substrates without destroying the underlying textile fabric. The metals should be able to be electrochemically reapplied to the textile substrates (woven fabrics, knitted fabrics, nonwovens) or used for sensory or actuator applications. The processes are analyzed using molecular spectroscopy or electrochemistry. Losses are to be minimized and the ecological and economic benefits determined.

### **Suitable for / Requirements for the student:**

The project is suitable for chemistry-affine students with an interest in inorganic, macromolecular and/or electrochemistry as well as technical textiles (e.g. medical textiles, smart textiles)