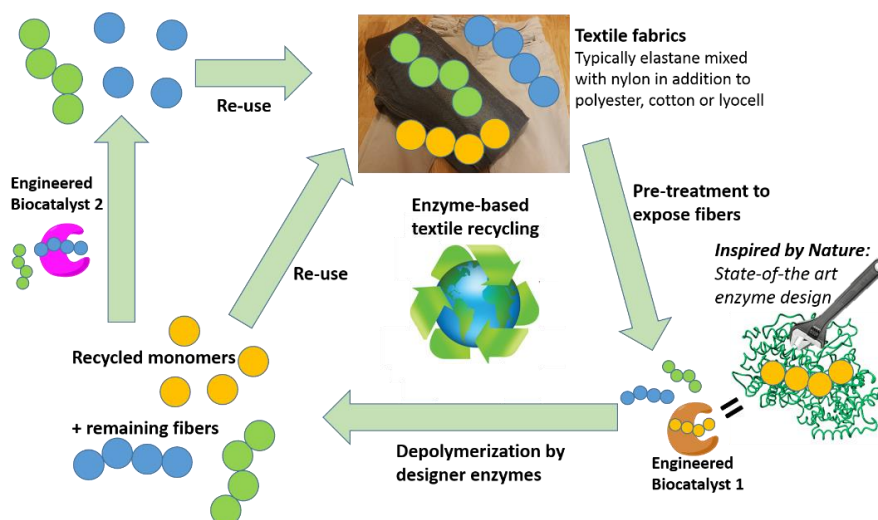


# Master THESIS in Biotechnology/Polymer Chemistry

## Enzymatic recycling of synthetic textile fibers

### Aim and content of the Master thesis

The circular economy within textiles today suffers from inefficient mechanical and chemical separation of fibers due to complex textile blends used in today's clothing. This constitutes a major obstacle to textile recycling, hence 25% of the 100 Megatons consumed textiles world-wide each year are currently reused, and only a few percentage are recycled. This is associated with severe environmental consequences. To overcome the major challenge of fiber separation from blends, this project seeks a unique biotechnological solution (figure):



The objective of this degree project is to evaluate designer enzymes for applications in biotechnological-assisted recycling of synthetic textile fibers, through mild hydrolysis. Using this approach, the Syrén lab and collaboration partners currently explores this unique strategy to break down polyurethanes and polyamides. To achieve this, this diploma work capitalizes on biotechnology, enzyme design and polymer chemistry. A successful project would initiate a shift of textile waste recovery, from incineration to high quality recycled textile fibers. This would be highly beneficial for the environment and for a circular bioeconomy. The project constitutes a close collaboration between KTH, BOKU University in Vienna, RISE and several industries active in the fashion and polymer industrial fields.

### **Requirements**

A highly motivated student with a background in either polymer chemistry or biotechnology, who would like to broaden his/her knowledge on biochemistry and polymer science. The ability to work independently is highly recommended.

### **Where?**

The position will be situated at the Department of Fibre and Polymer Technology, KTH and Science for Life Laboratory, Tomtebodavägen 23b, Solna.

### **Details:**

Start: As soon as possible

<https://syrenlab.com/about/>

Duration: 6 months

### **Contacts:**

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