Opportunity for a Semester thesis or Master project

Demonstrator for stamp forming of bicomponent fibre textile preforms

**Motivation**

Today’s greatest challenge in realizing energy-efficient structures from fibre-reinforced plastics lies in the capacity to manufacture high quality parts quickly and cost-effectively. This limits their availability for high volume production and thus hinders the adaptation of these lightweight materials in large volume markets.

Antefil Composite Tech will revolutionize high volume composites manufacturing by providing preforms made from glass fibres which are individually clad in a meltable, recyclable plastic.

Our mission is to expedite the transition of the global composites industry to a more cost- and energy-efficient future and to help previously untouched markets adapt advanced lightweight material technology. To achieve these goals, we want to redefine the limits of cycle time and laminate quality encountered in large scale composites production and provide recyclable material preforms for processes currently bound to thermosets.

**Introducing hybrid bicomponent fibers**

We spin glass fibres and coat them in-line with a thermoplastic polymer, resulting in flexible preforms which are easily and quickly consolidated to perfection and guarantee a uniform fibre distribution. They even enable the use of weldable and recyclable materials for large scale parts.

**Thesis objectives**

The goal of this thesis is to realize a fully three-dimensional structural component to demonstrate the capabilities of bicomponent fibre textile preforms in stamp forming. To that end, unidirectional arrangements of bicomponent fibre samples shall be converted into cross-ply non-crimp fabrics and a tensioning rig shall be realized to hold the preform during the stamping process. Finally, a small series of stamp forming experiments shall be conducted to realize the demonstrator component.

**Your profile**

- Interested in lab work
- Ideally, experienced with composites
- Highly motivated and collaborative student with a passion for sustainable technology

**Supervisor** Prof. Dr. Paolo Ermanni  
**Advisor** Christoph Schneeberger  
**Begin/end** On appointment  
**Presentations** Intermediate (ungraded) and final (graded) presentations

Content may be discussed to suit other thesis types.