Mission Statement
The objective of the overarching collaborative project E-SATstart is to develop several core technological innovations of the Silent Air Taxi, an ultra-quiet, low-cost producible small aircraft that can be certified for commercial aviation. By directly connecting regional centers and rural areas, the Silent Air Taxi serves as a pioneer of new mobility concepts that make aviation more efficient and ecological.

In the partner project "Research of key technologies for the electro-hybrid Silent Air Taxi", 6 institutes of RWTH Aachen University and a total of 7 partners from industry are systematically researching and optimizing the necessary technological principles and methods. Within the project, the Institute of Textile Technology is developing a process route for the cost-effective production of a wing in large quantities based on the use of hybrid thermoplastic-thermoset composites.

Approach
The aim is to develop a process route for the production of a hybrid wing made of thermoplastic and thermoset. To this end, alternative curing concepts for the co-consolidation of thermoplastic and thermoset are first identified and evaluated in terms of technical and economic suitability by means of a utility value analysis and rough cost calculation. This is followed by the selection of suitable material combinations of thermoplastic and thermoset for the manufacture of the wing. Material combinations are prepared in the form of a material map containing all the relevant achievable material properties as well as information on process control during textile processing.
and consolidation. Particular attention is paid to the processing window in
terms of temperature and pressure. Subsequently, in cooperation with IMA
Materialfor-schung und Anwendungstechnik GmbH, a material combination
is selected that meets both the mechanical requirements and the require-
ments for certification of the structure. The production route is then imple-
mented in terms of process technology on the basis of a prototype.

**Acknowledgement**

The project "E-SATstart", funding code 20M1908C,
is funded within the 1st call of the aeronautical re-
search program VI of the Federal Ministry for Eco-
nomic Affairs and Energy based on a decision of
the German Bundestag.

**Contact**

Yanick Schlesinger, M.Sc.
Department: Composite Reinforcements
Tel.: +49 (0)241 80 23457

Dominik Granich, M.Sc.
Department: Hybrid Materials and Impregnation Technology
Tel.: +49 (0)241 80 22092

Hannah Dammers, M.Sc.
Department: Composite Production
Tel.: +49 (0)241 80 22095