

Press Release

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Awards for best master's thesis and best project thesis of the German Textile Mechanical Engineering 2022 go to young engineers of ITA Aachen

22 June 2022 The 2002 prizes of the Walter Reiners Foundation of the VDMA Textile Machinery Association for the best Master's thesis and for the best project work in German textile mechanical engineering were awarded to young engineers from the ITA Institut für Textiltechnik of RWTH Aachen University. The prize ceremony took place at Techtextil 2022 in Frankfurt am Main, Germany, on 22 June 2022. Mr. Peter D. Dornier, Chairman of the Board of the Walter Reiners Foundation, presented the awards at the VDMA Textile Machinery Association's booth at Techtextil. In total, several students and young engineers from different universities were honoured with the nationwide prizes and awarded for their top performance in their studies.

Mr. Felix Xaver Zerbes, M.Sc., was awarded the "Promotional Prize for the Best Master's Thesis of the German Textile Machinery Industry 2022", endowed with 3,500 EUR, for his master's thesis "Development and Construction of a Separation Unit for Weft Yarns in Air Jet Weaving".

The subject of the master's thesis was the development of a mechanism with which faulty sections in the weft yarn can be sorted out before they are woven into the textile. This way, both yarn-related weft defects and material defects can be drastically reduced. The prototype developed by Mr Zerbes shows how this can be done even during the ongoing weaving process without having to stop production. Due to its modular design, the yarn rejection unit can be retrofitted to many different types of air-jet weaving machines, which represents an enormous savings potential not only in Germany but in weaving mills all over the world.

The ITA students Luis Gleißner, Leopold Habersbrunner, Frederic Olbrich and Frederik Schicks were awarded the prize for the best project work for their work "Construction of a test set-up for long-term tests on oil-adsorbing textiles" and prize money of 4,000 euros.

The thesis was written within the framework of the project "BOA - Bionic Oil Adsorber". The project was funded by the DBU and carried out at ITA together with the project partners Nees Institute for Plant Biodiversity at the University of Bonn and Heimbach GmbH.

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In this project, textiles are being developed based on the model of superhydrophobic biological surfaces, which can be used to remove oil contamination from water surfaces. To date, manual measurements have been carried out to examine the technical textiles in detail over a period of several weeks. The goal of the project work was to construct a setup with which automatically measurable and reproducible measurements can be carried out.

For this purpose, the students used the VDI guideline 2221. Several solution variants were worked out on the basis of a list of requirements and evaluated by means of a technical-economic evaluation

according to VDI 2225. Subsequently, the technically most reasonable concept was built and the prototype was tested.

With this test setup, statistically significant measurement data can be collected by testing 20 textile samples simultaneously under constant conditions. The measurement data is collected and stored automatically via flow sensors and further processing electronics.

Because of the work of the four students, it is now possible to investigate technical textiles with regard to their suitability for the sustainable oil adsorber in a reproducible manner and over several weeks.

Thus, the setup constructed in the thesis offers a great added value for the scientific investigation of textiles and for the eventual market introduction of textiles for the purification of waters.

The constructed setup can also be transferred to other fields. For example, the investigation of cleaning textiles can be conceivable with it.

Caption:

Prof. Gries, Peter D. Dornier and the ITA award winners (from left to right): Leopold Habersbrunner, Luis Gleissner, Felix Zerbes, Frederik Schicks, Frederic Olbrich, Source: ITM/TUD

About the ITA Institut für Textiltechnik of RWTH Aachen University

The core of the [ITA Group International Centre for Sustainable Textiles](#) is the research and teaching institution, the [ITA Institut für Textiltechnik of RWTH Aachen University](#). The ITA Group International Centre for Sustainable Textiles focuses its core competence on the goal of ensuring the holistic biotransformation of textile technology and thus the use of biological principles for small-scale value-added processes. The ITA Group International Centre for Sustainable Textiles is an international research and training service provider for fibre-based high-performance materials, textile semi-finished products and their manufacturing processes with about 350 employees.