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SÄCHSISCHES TEXTIL FORSCHUNGS INSTITUT e.V.
SAXON TEXTILE RESEARCH INSTITUTE

Double-curved spacer-fabrics

HybriSanTex – 3D-hybrid structures for multifunctional applications

Problems

3-dimensional core-materials, such as honeycombs or PVC-foams, are known as state of the art. But they have various disadvantages, such as:

- deficient drapability - breakdown of structures in bending,
- no possibility for drainage,
- difficult integration of components (such as media lines, cable).

This allows only flat or slightly curved shapes are produced.

Motivation

- Development of 3D core materials of high performance fibers,
- Integration of media- and functional elements

Results

- Development of textile hybrid core materials from spacing knitted fabrics with latticed top surface layers of high performance fibers such as glass and carbon, pile-threads of high performance fibers reinforced with additional pile-threads in terms of monofilaments,
- Proof of the excellent drapability of such textile core materials in double and even multiple curved 3D composite structures,
- Manifold opportunities for integrating media and feature lines in the distance areas already during the manufacturing process of the textile spacer structures,
- By the targeted use of different materials and material combinations, variations in the weaves and different constructions of sandwich structures are producible tailored structures for the respective application

Areas

The double or multiple curved sandwich structures, for example, find application in:

- Fiber-reinforced structures for boats and yachts,
- Buildings as acoustics- or signal-walls,
- In transportations as backventilated seats and much more

Project partners

SKZ Das Kunststoff-Zentrum · INVENT · AMTRONICS Angewandte Mikromechatronik GmbH

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