

Research content for the short video High-tech grows on its own_ Utopia 2024

"IMAGINE: High-tech grows on its own

... Enabled by revolutionary wood tech for cars, batteries & more"

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Multiple cascading uses of wood

In the future, a world will unfold in which wood is no longer just used as a traditional building material or for furniture, but as a key component in the development of high-tech products. This utopia is based on the innovative concept of multiple cascading uses of wood, where this natural material is used in different life cycles and for different applications to maximize environmental sustainability and minimize the carbon footprint.

In this vision of the future, battery trays for electric vehicles are partly made of wood. These wooden components are not only lightweight and structurally strong, but are also able to store CO₂ and act as a sink to a certain extent. Researchers have developed special processes that provide wood with natural fire protection, make it water-repellent and make optimum use of its insulating properties, making it ideal for use in battery housings. The use of wood in battery trays can reduce production costs while minimizing environmental impact.

Lightness, flexibility & sustainability

Wood is also experiencing a renaissance in the field of transportation. Chassis for snowmobiles, which are partly made of wood, offer a surprising combination of lightness, stability and sustainability. Advanced composite technologies that combine wood fibers with other materials create durable yet flexible frame structures that can withstand the extreme conditions of snowmobile racing.

Another notable example is the use of wood as a side impact beam in car doors. Engineers have developed methods to reinforce wood in such a way that it increases safety in collisions. These wooden components absorb energy efficiently and help to provide optimum protection for the occupants. In addition, the use of wood also leads to a reduction in the weight of the side impact beam.

The idea of multiple cascading uses of wood is transforming industries and creating a future where environmental sustainability takes center stage. The innovative use

of wood in technology products reduces fossil fuel consumption, maximizes CO2 sequestration and takes an important step towards a greener and more sustainable world. In this utopia, wood is no longer just a building material, but a symbol for the intelligent use of resources and for innovations that respect and protect our environment. für Umweltsystemwissenschaften, Uni Graz

Research at the site

- **Research at the Institute of Timber Engineering and Wood Technology, Technical University Graz**

<https://www.tugraz.at/en/institutes/lignum/research/research-focuses>

- **Center of Sustainable Construction, TU**

Graz <https://www.tugraz.at/en/research/research-at-tu-graz/research-centers/graz-center-of-sustainable-construction>

- **CARpenTiER - Modelling, Production and further Processing of Eco-Hybrid Structures and Materials: <https://www.carpentier.at/index.html>**

- **Vehicle Safety Institute, TU**

Graz: <https://www.tugraz.at/en/institutes/vsi/research/research-projects/active-research-projects>