



Contribution ID: 52

Type: Poster

## **【153】 Optimizing the mechanical performance of 3D-printed wood-fiber-reinforced biocomposites by adjusting the infill orientation**

*Wednesday 28 August 2019 19:02 (1 minute)*

A detailed characterization of the mechanical performance, such as tensile strength, heat deflection temperature, compressive strength as well as impact strength, of 3D-printed wood-fiber-reinforced biocomposites was carried out as a function of various infill pattern orientations. Two wood filaments differing in terms of wood fiber content were utilized for specimen production, using a commercially available FDM 3D printer. All FDM 3D printed samples were evaluated depending on the infill orientation and on the wood fiber content. It could be proven that all investigated mechanical characteristics of the FDM 3D-printed wood-fiber-reinforced biocomposites are heavily dependent on the wood fiber content and on the infill pattern orientation. This study has been conducted within the international project Interreg Austria-Bavaria AB97 TFP-HyMat.

**Primary authors:** Mr KAIN, Stefan (Salzburg University of Applied Sciences, Department of Forest Products Technology & Timber Construction); Mr ECKER, Josef Valentin (Kompetenzzentrum Holz GmbH (Wood K Plus), Department of Bio-based Composites and Processes); Dr HAIDER, Andreas (Kompetenzzentrum Holz GmbH (Wood K Plus), Department of Bio-based Composites and Processes); Dr MUSSO, Maurizio (University of Salzburg, Department of Chemistry and Physics of Materials); Dr PETUTSCHNIGG, Alexander (Salzburg University of Applied Sciences, Department of Forest Products Technology & Timber Construction)

**Presenter:** Dr MUSSO, Maurizio (University of Salzburg, Department of Chemistry and Physics of Materials)

**Session Classification:** Poster Session

**Track Classification:** Condensed Matter Physics (KOND)