



Workshop:

Application of light-weight materials in e-mobility: New approaches for native or modified wood composites

Contact:

Dr. Dirk Berthold & Dipl.-Phys. Peter Meinlschmidt
Technology for Wood and Natural Fiber-Based Materials
Fraunhofer Institute for Wood Research, Wilhelm-Klauditz-Institut (WKI)/ DE
Dirk.Berthold@wki.fraunhofer.de; Peter.Meinlschmidt@wki.fraunhofer.de

Dr. Peter Rademacher
Faculty of Wood Engineering
Eberswalde University for Sustainable Development/ DE
Faculty of Forestry and Wood Technology
Mendel-University in Brno/ CZ
prademacher@hnee.de; peter.rademacher@mendelu.cz



University of Applied Sciences



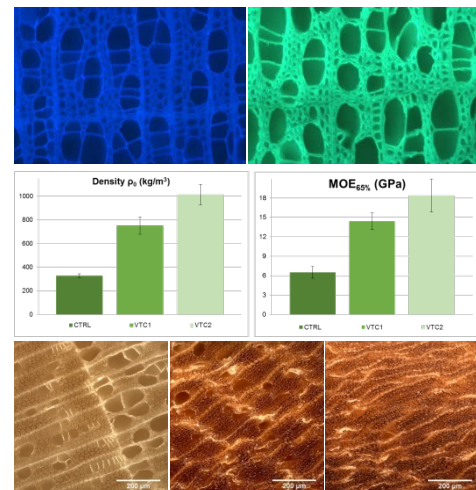
Workshop topics: Wood and e-Mobility

- Wood-Requirements in e-mobility & vehicles:
 - Light weight construction material
 - Weight compensation of heavy batteries
 - Demands in high strength - low weight ratio
- New approaches for sustainable wood applications:
 - Advantages: Renewability & local sources
 - Availability of numbers of lesser used tree species for niche applications in wood usage
 - Wide range of native wood properties
 - Adaption or improvement of properties by wood modification, new composites, etc.
 - Use of wood for construction, insulation, décor

Wood is a renewable material with many applications in construction, design, insulation etc. Sustainable material, production, use and recycling deliver many environmental advantages compared to conventional materials like steel, aluminium or polymers. High “strength to weight ratios” enables wood to be used in automotive and mobility applications, esp. in e-mobility where low weight and high efficiency in energy saving is needed.

Under the new approach of electro-mobility, demands in vehicle constructions can be fulfilled with various wood-species and hybrid-wood materials. The following properties can be reached:

- low density, light weight, good thermal-insulation
- high density, strong weight, high strength properties
- long wood fibres, good dynamic properties, good energy absorption in crash tests



Row 1: Native (l) and extract impregnated (r) and 2: plastified as well as densified poplar wood (l-r: 330 [native], 750, 1015 kg m⁻³); 3: Density and strength parameters of densified poplar; 4: laminated Ash for e-bike (l); electric car (r; <https://de.wikipedia.org/wiki/Elektromobilit%C3%A4t>).

AN INITIATIVE OF THE

