

About this organisation

Department of Organic and Wood-Based Materials (Chair: Prof. Dr. Bo Kasal) of iBMB works closely together with the Fraunhofer Institute for Wood Research Wilhelm-Klauditz-Institut. The department maintains an expertise in fields of polymeric and inorganic construction materials, corrosion, and analytical investigation methods on materials and material failure, as well as organic materials used in construction - particularly wood and plastics.

- Multi-scale characterization and analysis of textile materials from single fibre, yarn to fabrics - Chemical and mechanical analysis of polymer materials - Bio-composites and synthetic fibre reinforced polymer (FRP) composites for construction, automotive and sport industries - Hybrid and light-weight materials and structures, such as FRP-timber, FRP-concrete, textile reinforced concrete, fibre reinforced geopolymer and cementitious composites - Recycling and reuse of materials from construction and demolition, agricultural and forestry wastes - Recycling and reuse of plastics - Sustainable insulation materials from renewable resources - Light-weight structure design and innovation

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www.ibmb.tu-braunschweig.de/index.php/fachgebiet-fgo.html



Organisation type

University or higher education institution

Sectors



Employees

10 up to 49

Turnover

Up to €2m

Funding

n/a

About this organisation

Main areas covered	Civil Engineering; Material Science
Infrastructure	Research and Development
Certifications	ISO 900
Keywords	Wood, Composite, Hybrid Structures
Memberships	RILEM

Overview of lightweighting expertise

	Research	Development	Manufacturing & Supply
Offer			
Products Materials	✓	✓	
Services & consulting Training, Consulting, Testing and trials, Engineering, Prototyping, Validation, Simulation, Technology transfer, Approval	✓	✓	

Overview of lightweighting expertise			
	Research	Development	Manufacturing & Supply
Field of technology			
Design & layout Lightweight design, Hybrid structures, Lightweight construction concepts, Lightweight material construction	✓	✓	
Functional integration Thermal activation, Material functionalisation	✓	✓	
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), Environmental simulation, Materials analysis, Destructive analysis	✓	✓	
Modelling and simulation Crash behaviour, Optimisation, Structural mechanics, Materials	✓	✓	
<i>Plant construction & automation</i>			
Recycling technologies Downcycling, Material separation, Recycling	✓	✓	

Overview of lightweighting expertise

	Research	Development	Manufacturing & Supply
Manufacturing process			
<i>Additive manufacturing</i>			
<i>Coating (surface engineering)</i>			
Fibre composite technology Fibre spraying, Casting (concrete), Resin infusion process, Pre-preg processing, Vacuum infusion	✓	✓	
<i>Forming</i>			
Joining Hybrid joining, Adhesive bonding	✓	✓	
<i>Material property alteration</i>			
<i>Primary forming</i>			
Processing and separating Cutting	✓	✓	
Textile technology Textile surface treatment and finishing, Weaving	✓	✓	

Overview of lightweighting expertise

	Research	Development	Manufacturing & Supply
Material			
Biogenic materials Bioplastics, Biocomposites, Wood	✓	✓	
Cellular materials (foam materials) Open-pore	✓	✓	
Composites Basalt fibre-reinforced plastic, Glass-fiber reinforced plastics (GFRP), Carbon-fiber reinforced plastics (CFRP), Short fibre-reinforced concrete, Nanocomposites, Natural fibre reinforced plastics (NFRP), Laminates, Textile-reinforced concrete	✓	✓	
Fibres Basalt fibres, Glass fibres, Carbon fibres, Natural fibres	✓	✓	
<i>Functional materials</i>			
<i>Metals</i>			
Plastics Thermoset plastics, Thermoplastics	✓	✓	
<i>Structural ceramics</i>			
(Technical) textiles Yarns, rovings, Meshes, Woven fabrics, Knitted fabrics, Nonwovens, mats	✓	✓	

Contacts

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