

About this organisation

Machine translation

This organisation has been machine-translated based on data provided in German.

University research facility in the field of lightweight construction and plastics processing of thermoset and thermoplastic fibre composites.

Our scientific work focuses on the development and research of integrative plastics technologies for the resource-efficient production of lightweight structures and systems. The starting materials include specifically modified high-performance polymers and compounds made from renewable raw materials as well as innovative thermoplastic prepregs and bionically adapted semi-finished textile products. In various thermoplastic and thermoset-based manufacturing processes, a fusion of currently separate processes is taking place in order to produce complex components with high power density and high functional integration in an energy-efficient manner. Coupled component and process simulation using analytical and numerical methods provides crucial information for optimising structural parameters and process windows.

Reichenhainer Str. 31
09126 Chemnitz
Saxony
Germany
strukturleichtbau.net



Organisation type

University or higher education institution

Sectors

No specific sector

Employees

50 up to 249

Turnover

€10m - €50m

Funding



About this organisation

Main areas covered	Plastics processing, Calculation, simulation, testing, Active material composites, Lightweight construction in the building industry, Handling and interlinking systems
Infrastructure	Injection moulding, Extrusion and compounding, Presses, Semi-finished product production, SLM process
Certifications	DIN EN ISO 9001:2008
Keywords	Lightweight construction, Renewable raw materials, Component and process simulation, Hybrid construction, Thermoplastics and thermosets
Memberships	

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Offer			
Products Parts and components, Semi-finished parts, Software & databases, Systems and end products, Materials, Tools and moulds	✓	✓	
Services & consulting Training, Consulting, Testing and trials, Funding, Engineering, Standardisation, Prototyping, Validation, Simulation, Technology transfer	✓	✓	

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Field of technology			
Design & layout Lightweight manufacturing, Lightweight design, Hybrid structures, Lightweight construction concepts, Lightweight material construction	✓	✓	
Functional integration Actuator technology, Media conductivity, Sensor technology, Thermal activation, Material functionalisation	✓	✓	
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), System analysis, Environmental simulation, Materials analysis, Destructive analysis, Non-destructive analysis	✓	✓	
Modelling and simulation Crash behaviour, Loads & stress, Life-cycle analysis, Multiphysics simulation, Optimisation, Processes, Structural mechanics, Materials	✓	✓	
Plant construction & automation Automation technology, Handling technology, Robotics	✓	✓	
Recycling technologies Downcycling, Material separation, Recycling, Upcycling	✓	✓	

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Manufacturing process			
Additive manufacturing 3D printing, Selective laser melting (SLM, LPBF, ...)	✓	✓	
<i>Coating (surface engineering)</i>			
Fibre composite technology Filament winding, Casting (concrete), Manual lamination, Resin infusion process, Resin transfer moulding, Pre-preg processing, Vacuum infusion	✓	✓	
Forming Impact extrusion, Compression moulding, Thermal converting, Fluid active media based forming	✓	✓	
Joining Hybrid joining, Adhesive bonding, Sewing, Riveting, Welding	✓	✓	
Material property alteration Mechanical treatment, Thermomechanical treatment, Heat treatment	✓	✓	
Primary forming Extrusion, Casting, Pultrusion, Injection moulding	✓	✓	
Processing and separating Drilling, Turning, Milling, Electrical discharge machining, Sawing, Cutting			✓
Textile technology Fibre manufacturing, Yarn & roving production, Preforming, Knitting, laid web production	✓	✓	

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Material			
Biogenic materials Bioplastics, Biocomposites, Wood	✓	✓	
Cellular materials (foam materials) Closed-pore, Open-pore, Syntactic foams	✓	✓	
Composites Basalt fibre-reinforced plastic, Glass-fiber reinforced plastics (GFRP), Carbon-fiber reinforced plastics (CFRP), Short fibre-reinforced concrete, Metal-fibre-polymer composite, Nanocomposites, Natural fibre reinforced plastics (NFRP), Laminates, Textile-reinforced concrete	✓	✓	
Fibres Basalt fibres, Glass fibres, Carbon fibres, Metal fibres, Natural fibres	✓	✓	
Functional materials Shape memory materials, Piezoelectric materials	✓	✓	
Metals Titanium	✓	✓	
Plastics Thermoset plastics, Elastomers, Thermoplastics	✓	✓	
<i>Structural ceramics</i>			
(Technical) textiles Laid webs, Woven fabrics, Knitted fabrics	✓	✓	

Contacts

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