

TU Dresden, Institute of Lightweight Engineering and Polymer Technology

Thermoset Processes and Preforming Division

About this organisation

Machine translation

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

The specialist group "Thermoset Processes and Preforming" at the Institute of Lightweight Engineering and Polymer Technology at TU Dresden deals with the characterisation, modelling and simulation of reactive processes, plant and process development for innovative preform concepts as well as the development and research of novel materials, semi-finished products and associated processing technologies.

At the Institute of Lightweight Engineering and Polymer Technology at TU Dresden, nine specialist groups focus on different areas of lightweight construction. The Thermoset Processes and Preforming group deals with the characterisation, modelling and simulation of reactive processes, plant and process development for innovative preform concepts as well as the development and research of new materials, semi-finished products and associated processing technologies. The production of active composite structures is another research focus in which the moderate process conditions in the processing of thermoset matrix systems and polyurethanes in particular are utilised in a targeted manner. Thanks to comprehensive technological equipment, a large number of both prototype and production-ready processing technologies can be utilised. The main areas of specialisation are prepreg processing, infusion and injection processes, braiding and polyurethane processing.

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tu-dresden.de/ing/maschinenwesen/ilk/forschung/fachgruppe-duroplastverfahren-und-preforming



Organisation type

University or higher education institution

Sectors



Employees

Up to 9

Turnover

Up to €2m

Funding

n/a



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Thermoset Processes and Preforming Division

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Main areas covered	Plant and process development, Material characterisation, Fibre composite processing, Modelling and simulation
Infrastructure	Autoclave, High-pressure RTM system, Polyureathan processing centre, Braiding and winding system, Multifunctional quick-lift press
Certifications	
Keywords	Preforming, Fibre composite, Thermoset, Process development, Polyurethanes
Memberships	

Overview of lightweighting expertise

Machine translation

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	Research	Development	Manufacturing & Supply
Offer			
Products Parts and components, Semi-finished parts, Machines and plants, Systems and end products, Materials, Tools and moulds	✓	✓	
Services & consulting Testing and trials, 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, Materials analysis, Destructive analysis, Non-destructive analysis	✓	✓	
Modelling and simulation Processes, Materials	✓	✓	
Plant construction & automation Plant construction, Automation technology, Handling technology	✓	✓	
Recycling technologies Recycling	✓	✓	

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Manufacturing process			
<i>Additive manufacturing</i>			
<i>Coating (surface engineering)</i>			
Fibre composite technology Fibre spraying, Filament winding, Manual lamination, Resin infusion process, Resin transfer moulding, Pre-preg processing, Vacuum infusion	✓	✓	
Forming Impact extrusion, Compression moulding, Thermal converting	✓	✓	
<i>Joining</i>			
<i>Material property alteration</i>			
Primary forming Casting	✓	✓	
<i>Processing and separating</i>			
Textile technology Braiding, Preforming	✓	✓	

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	✓	✓	
Composites Aramid fibre composites, Basalt fibre-reinforced plastic, Glass-fiber reinforced plastics (GFRP), Carbon-fiber reinforced plastics (CFRP), Natural fibre reinforced plastics (NFRP)	✓	✓	
Fibres Aramid fibres, Basalt fibres, Glass fibres, Ceramic fibres, Carbon fibres, Metal fibres, Natural fibres, Others (Hybrid fibres)	✓	✓	
Functional materials Electrorheological/magnetorheological fluids, Piezoelectric materials	✓	✓	
<i>Metals</i>			
Plastics Thermoset plastics	✓	✓	
<i>Structural ceramics</i>			
(Technical) textiles Yarns, rovings, Meshes, Laid webs, Crocheted fabrics, Woven fabrics, Knitted fabrics, Nonwovens, mats	✓		

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Contacts

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