

# TU Dresden, Institute of Lightweight Engineering and Polymer Technology

## Thermoset Processes and Preforming Division

### About this organisation

#### Machine translation

This profile 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](https://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



[Projects in the funding catalogue](#)



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

### Overview of lightweighting expertise

#### Machine translation

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	Research	Development	Manufacturing & Supply
<b>Offer</b>			
<b>Products</b> Parts and components, Semi-finished parts, Machines and plants, Systems and end products, Materials, Tools and moulds	✓	✓	
<b>Services &amp; consulting</b> Testing and trials, Engineering, Standardisation, Prototyping, Validation, Simulation, Technology transfer	✓	✓	

## Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
<b>Field of technology</b>			
<b>Design &amp; layout</b> Lightweight manufacturing, Lightweight design, Hybrid structures, Lightweight construction concepts, Lightweight material construction	✓	✓	
<b>Functional integration</b> Actuator technology, Media conductivity, Sensor technology, Thermal activation, Material functionalisation	✓	✓	
<b>Measuring and testing technology</b> Component and part analysis, Visual analysis (e.g. microscopy, metallography), System analysis, Materials analysis, Destructive analysis, Non-destructive analysis	✓	✓	
<b>Modelling and simulation</b> Processes, Materials	✓	✓	
<b>Plant construction &amp; factory automation</b> Plant construction, Automation technology, Handling technology	✓	✓	
<b>Recycling technologies</b> Recycling	✓	✓	

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

## Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
<b>Material</b>			
<b>Biogenic materials</b> Bioplastics, Biocomposites, Wood	✓	✓	
<b>Cellular materials (foam materials)</b> Closed-pore, Open-pore	✓	✓	
<b>Composites</b> Aramid fibre composites, Basalt fibre-reinforced plastic, Glass-fiber reinforced plastics (GFRP), Carbon-fiber reinforced plastics (CFRP), Natural fibre reinforced plastics (NFRP)	✓	✓	
<b>Fibres</b> Aramid fibres, Basalt fibres, Glass fibres, Ceramic fibres, Carbon fibres, Metal fibres, Natural fibres, Others: null	✓	✓	
<b>Functional materials</b> Electrorheological/magnetorheological fluids, Piezoelectric materials	✓	✓	
<i>Metals</i>			
<b>Plastics</b> Thermoset plastics	✓	✓	
<i>Structural ceramics</i>			
<b>(Technical) textiles</b> Yarns, rovings, Meshes, Laid webs, Crocheted fabrics, Woven fabrics, Knitted fabrics, Nonwovens, mats	✓		

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## *Thermoset Processes and Preforming Division*

### Contacts

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

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