Research Division Polymer Materials and Composites PYCO

About this organisation

Machine translation

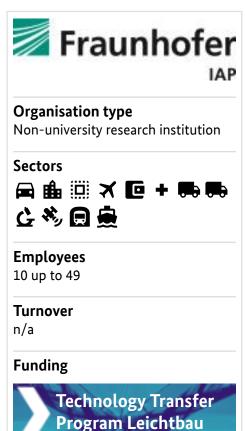
This profile has been machine-translated based on data provided in German.

The PYCO department deals with all aspects of polymer-based lightweight construction with fibre-plastic composites and complex fibre composite components in multi-material design. The holistic approach includes not only innovative construction methods, material design, structures and manufacturing technologies, but also the development of sustainable utilisation and recycling strategies for end-of-life scenarios and individual solutions thanks to state-of-the-art equipment.

From the development of special polymers and semifinished fibre composites, to the design of prototypes, to the planning and implementation of production processes suitable for large-scale production, all important lightweight construction competencies in the value chain can be mapped under one roof, from monomers to energy-efficient high-performance composite components. Such a bundling effect is a unique selling point in the German research landscape. Together with companies, the materials scientists develop highly cross-linked polymers, SMC and BMC semifinished products as well as high-performance prepregs for FRPs. The Design and Manufacturing Technologies department is responsible for the design and layout as well as the production-related realisation of high-performance components. During development, employees use the latest software and simulation tools, highly automated series production technologies and material developments from the Customised Materials department.

Schmiedestraße 5
15745 Wildau
Brandenburg
Germany

☑ www.iap.fraunhofer.de/de/Forschungsbereiche/
PYCO.html



☑ Projects in the funding catalogue

leichtbauatlas.de Page 1 of 6

Research Division Polymer Materials and Composites PYCO

About this organisation				
Main areas covered	Customised lightweight solutions			
Infrastructure	Autoclaves, 2K, 3K injection moulding machines, press, 3D printer, Water jet cutting system, Impregnation systems			
Certifications	-			
Keywords	Polymers and composites, Resin formulations and synthesis, Characterisation and structural tests, Efficient production technologies, Design of structural components			
Memberships	Composites United e.V., Fraunhofer MATERIALS Alliance, BBAA e.V., Lusatia hydrogen network, HZwo e.V.			

Overview of lightweighting expertise **Machine translation** This profile has been machine-translated based on data provided in German. Manufacturing Development Research & Supply Offer **Products** Parts and components, Semi-finished parts, Machines and plants, Materials, Tools and moulds **Services & consulting** Training, Testing and trials, Engineering, Prototyping, Validation, Simulation, Technology transfer

leichtbauatlas.de Page 2 of 6

Research Division Polymer Materials and Composites PYCO

Overview of lightweighting expertise						
Machine translation						
his profile has been machine-translated based on data provided in German.						
	Research	N Development	lanufacturin & Supply			
Field of technology						
Design & layout Lightweight manufacturing, Lightweight design, Hybrid structures, Lightweight construction concepts, Lightweight material construction	✓	✓				
Functional integration 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, Reliability validation	~	✓				
Plant construction & factory automation						
Recycling technologies Material separation, Recycling	✓	✓				

leichtbauatlas.de Page 3 of 6

Research Division Polymer Materials and Composites PYCO

verview of lightweighting expertise					
achine translation					
nis profile has been machine-translated based on data provided in German.					
	Research	Manufacturing Development & Supply			
Manufacturing process					
Additive manufacturing 3D printing	✓	✓			
Coating (surface engineering) Painting, Plasma process, Hot dipping, Sputtering	✓	✓			
Fibre composite technology Fibre spraying, Filament winding, Manual lamination, Resin infusion process, Resin transfer moulding, Pre-preg processing, Vacuum infusion	✓	✓			
Forming Bending, Impact extrusion, Compression moulding, Thermal converting	✓	✓			
Joining Hybrid joining, Adhesive bonding, Sewing, Riveting, Screwing	~	~			
Material property alteration Mechanical treatment, Thermochemical treatment, Thermomechanical treatment, Heat treatment	✓	✓			
Primary forming Extrusion, Casting, Pultrusion, Injection moulding	✓	~			
Processing and separating Drilling, Turning, Milling, Sawing, Shearing/ punching, Grinding, Cutting	✓	✓			
Textile technology Preforming, Textile surface treatment and finishing	✓	✓			

leichtbauatlas.de Page 4 of 6

Research Division Polymer Materials and Composites PYCO

Machine translation This profile has been machine-translated based on data provided in German.					
	Research	Manufacturin Development & Supply			
Material					
Biogenic materials Bioplastics, Biocomposites	✓	✓			
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), Metal-fibre-polymer composite, Nanocomposites, Natural fibre reinforced plastics (NFRP), Laminates, Particulate composites, Textile-reinforced concrete	✓	✓			
Fibres Aramid fibres, Basalt fibres, Glass fibres, Ceramic fibres, Carbon fibres, Metal fibres, Natural fibres	✓	✓			
Functional materials					
Metals					
Plastics Thermoset plastics, Elastomers, Thermoplastics	✓	✓			
Structural ceramics					

leichtbauatlas.de Page 5 of 6

Research Division Polymer Materials and Composites PYCO

Contacts Machine translation This profile has been machine-translated based on data provided in German. Mr Prof. Dr.-Ing. Holger Seidlitz Head of Research Division holger.seidlitz@iap.fraunhofer.de Mr Prof. Dr. rer. nat. Christian Dreyer Deputy Head of Research Division christian.dreyer@iap.fraunhofer.de

leichtbauatlas.de Page 6 of 6