Institute for Plastics Processing (IKV) at RWTH Aachen University

About this organisation

Machine translation

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

The Institute of Plastics Processing (IKV) at RWTH Aachen University is Europe's leading research institute in the field of plastics technology with the key topics of additive manufacturing, integrative plastics technology, Industry 4.0 in plastics technology and lightweight construction. The combination of science and industry forms the central research core at the institute. The IKV network comprises more than 290 members worldwide.

IKV develops plastic-based lightweight construction solutions along the entire process chain with a clear focus on material science and production technology aspects. The solutions range from the load-optimised use of highly resilient continuous fibre-reinforced plastics and functionally integrated long and short fibre-reinforced lightweight components to the density reduction of unreinforced plastics using foaming processes and hybrid material combinations and multi-material construction methods using plastics and metals. in addition to the development of innovative processes, the prediction of the complex interactions between material, process and component properties plays a key role. IKV's close interdisciplinary collaboration with the Aachen Centre for Integrative Lightweight Construction (AZL), which was co-founded by IKV, and other research partners at RWTH Aachen University is the key to success.

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52074 Aachen
North Rhine-Westphalia
Germany
www.ikv.rwth-aachen.de

INSTITUT FÜR KUNSTSTOFF VERARBEITUNG

Organisation type
Non-university research institution

Sectors
No specific sector

Employees
250 up to 499

Turnover
€10m - €50m

Funding

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About this organisation

Main areas covered	Fibre-reinforced plastics, Injection moulding, Simulation, Product development, Materials engineering
Infrastructure	FVK technical centre, Injection moulding technology centre, Polyurethane processing centre, Extrusion technology centre, Centre for plastics analysis/ testing
Certifications	
Keywords	Continuous fibre-reinforced thermoplastics, Continuous fibre-reinforced thermosets, Press processing, Injection moulding, Design and simulation
Memberships	

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Offer			
Products Parts and components, Semi-finished parts, Machines and plants, Materials, Tools and moulds	✓	✓	
Services & consulting Training, Consulting, Engineering, Standardisation, Prototyping, Validation, Simulation, Technology transfer, Maintenance and repair	✓	✓	✓

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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 Media conductivity, Sensor technology, Material functionalisation	✓	✓	
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), Materials analysis, Destructive analysis, Non-destructive analysis	✓	✓	✓
Modelling and simulation Crash behaviour, Loads & stress, Life-cycle analysis, Optimisation, Processes, Structural mechanics, Materials, Reliability validation	✓	✓	
Plant construction & automation			
Recycling technologies			

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	Research	Development	Manufacturing & Supply
Manufacturing process			
Additive manufacturing 3D printing, Deposition welding, Fused deposition modeling, Selective laser melting (SLM, LPBF, ...), Others (Fluid deposition modelling, hybrid combination of additive and subtractive manufacturing, material behaviour)	✓	✓	
Coating (surface engineering) Plasma process	✓	✓	
Fibre composite technology Fibre spraying, Filament winding, Manual lamination, Resin infusion process, Resin transfer moulding, Pre-preg processing, Vacuum infusion, Others (Liquid impregnation process (RTM, gap impregnation), forming of organic sheets and UD laminates, UD tape production, pultrusion, impact extrusion (SMC/GMT), back injection moulding)	✓	✓	
Forming Impact extrusion, Compression moulding, Thermal converting, Deep-drawing, Fluid active media based forming	✓	✓	
Joining Hybrid joining, Adhesive bonding, Welding	✓	✓	
Material property alteration			
Primary forming Extrusion, Pultrusion, Injection moulding	✓	✓	
Processing and separating			
Textile technology Preforming	✓	✓	

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	Research	Development	Manufacturing & Supply
Material			
Biogenic materials			
Cellular materials (foam materials) Closed-pore, Open-pore, Syntactic foams	✓	✓	
Composites Aramid fibre composites, Basalt fibre-reinforced plastic, Glass-fiber reinforced plastics (GFRP), Carbon-fiber reinforced plastics (CFRP), Metal-fibre-polymer composite, Natural fibre reinforced plastics (NFRP)	✓	✓	
Fibres Aramid fibres, Glass fibres, Carbon fibres	✓	✓	
Functional materials			
Metals			
Plastics Thermoset plastics, Elastomers, Thermoplastics	✓	✓	
Structural ceramics			
(Technical) textiles Yarns, rovings, Meshes, Laid webs, Woven fabrics, Nonwovens, mats	✓	✓	

Contacts

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Contacts

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