

AiF Research Alliance Lightweight Construction (FAL)

About this organisation

Machine translation

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

The AiF Research Alliance Lightweight Construction (FAL) is an association of 27 research organisations, primarily small and medium-sized enterprises (SMEs), which deal with issues of constructive and material-specific lightweight construction. The central objective is to strengthen the innovative power and competitiveness of SMEs. The following research associations (FV) are members of the FAL:

Heat treatment and materials technology working group
Carbon Composites Lightweight Construction DECHEMA
Society for Chemical Engineering and Biotechnology
German FV for Measurement, Control and Systems
Engineering FV Welding and Allied Processes of the DVS
European Research Association for Sheet Metal Processing
FV Automotive Engineering Association for the Research
Institute for Precious Metals and Metal Chemistry Research
Association for Refractories Research Association for Plastics
Research Institute for Leather and Plastic Sheeting Research
Board for Mechanical Engineering Textile Research Board
FV Steel Application Association for the Promotion of the
South German Plastics Centre Research Association for
Steel Forming FV Drive Technology FV Foundry Technology
FV of the plaster industry FV Programming languages for
production facilities FV Shipbuilding and Marine Technology
FV Combustion Engines Society for Corrosion Protection
Institute for Plastics Processing at RWTH Aachen University
Sponsoring organisation Institute for Wood Technology FV
Materials from Sustainable Raw Materials Stifterverband
Metals

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www.aif.de/mitglieder/aif-forschungsallianzen/aif-forschungsallianz-leichtbau-fal.html



Organisation type

Cluster

Sectors



Employees

n/a

Turnover

n/a

Funding

n/a

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Main areas covered	Pre-competitive research, Industrial research, Knowledge and technology transfer
Infrastructure	Research network
Certifications	
Keywords	Industrial joint research, IGF, ZIM, Middle class, Economy, Science, Innovations, transfer
Memberships	AiF e.V.

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Offer			
Products Parts and components, Semi-finished parts, Machines and plants, 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, Maintenance and repair, Approval, Others (Research, OEKO-TEX certification)	✓	✓	✓

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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, 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 & automation Plant construction, Automation technology, Handling technology, Robotics	✓	✓	
<i>Recycling technologies</i>			

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	Research	Development	Manufacturing & Supply
Manufacturing process			
Additive manufacturing 3D printing, Deposition welding, Electron beam melting, Laminated object manufacturing (LOM), Fused deposition modeling, Selective laser melting (SLM, LPBF, ...), Selective laser sintering (SLS), Stereolithography, Others (Wire Arc Additive Manufacturing (WAAM), fluid deposition modelling, hybrid combination of additive and subtractive manufacturing, material behaviour)	✓	✓	
Coating (surface engineering) Galvanising, Painting, Plasma process, Powder coating, Hot dipping, Others (Build-up welding, thermal spraying, flame treatment, laser pre-treatment, vacuum suction blasting, priming)	✓	✓	
Fibre composite technology Fibre spraying, Filament winding, Casting (concrete), Manual lamination, Resin infusion process, Resin transfer moulding, Pre-preg processing, Vacuum infusion, Others (Liquid impregnation processes (RTM, gap impregnation), forming of organic sheets and UD laminates, UD tape production, pultrusion, impact extrusion (SMC/GMT), back injection moulding, repair processes)	✓	✓	
Forming Bending, Impact extrusion, Compression moulding, Forging, Stretch forming, Thermal converting, Deep-drawing, Fluid active media based forming, Rolling	✓	✓	
Joining Clinching, Hybrid joining, Adhesive bonding, Soldering, Sewing, Riveting, Screwing, Welding, Others (Garnish)	✓	✓	✓
Material property alteration Mechanical treatment, Thermochemical treatment, Thermomechanical treatment, Heat	✓	✓	✓

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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 Aramid fibre composites, Basalt fibre-reinforced plastic, Glass-fiber reinforced plastics (GFRP), Ceramic matrix composite (CMC), Carbon-fiber reinforced plastics (CFRP), Metal-fibre-polymer composite, Metal-ceramic composite, Metal matrix composite, Nanocomposites, Natural fibre reinforced plastics (NFRP), Laminates, Particulate composites, Textile-reinforced concrete, Others (Steel-concrete composite, fibre-reinforced wood materials)	✓	✓	
Fibres Aramid fibres, Basalt fibres, Glass fibres, Ceramic fibres, Carbon fibres, Metal fibres, Natural fibres	✓	✓	
Functional materials Electrostrictive / magnetostrictive materials, Shape memory materials, Piezoelectric materials	✓	✓	
Metals Aluminium, Intermetallic alloys, Magnesium, Steel, Titanium, Others (Copper, iron casting, copper casting, zinc die casting, nickel-based alloys)	✓	✓	✓
Plastics Thermoset plastics, Elastomers, Thermoplastics, Others (Viscoelastic polymer materials)	✓	✓	✓
Structural ceramics Non-oxidic ceramics, Oxidic ceramics, Ultra-high temperature ceramics, Others (Fibre-reinforced ceramics (CMC), hybrid components)	✓		

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Contacts

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