About this organisation

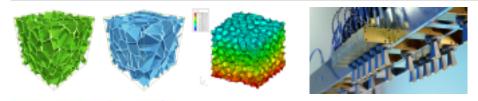
Machine translation

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

The Fraunhofer ITWM with its approx. 200 employees is active in the field of industrial mathematics. The departments cover topics ranging from material characterisation/testing and image processing to flow and material simulation. Focal points: Testing, characterisation, modelling, simulation and optimisation of composite materials and lightweight components; simulationsupported material/product design.

The basis for simulation-supported material modelling is usually 3D image data from micro-computed tomography. These are used to determine geometric parameters, for which the MAVI product family has been continuously developed in the Image Processing department for over 10 years. The geometric microstructure models represent the interface to the Flow and Material Simulation department. The simulation technology at the Fraunhofer ITWM is able to simulate and optimise real complex 3D structures and properties of microstructures. Various competences such as microstructure characterisation, microstructure generation, solving potential and flow problems and upscaling techniques are combined here. In material testing, the technologies used range from optical coherence tomography and systems in the terahertz frequency range to electronic testing systems in the millimetre wave range.

Fraunhofer-Platz 1 67663 Kaiserslautern Rhineland-Palatinate Germany 🖸 www.itwm.fraunhofer.de







Organisation type Non-university research institution



Others: Die verwendeten Methoden sind branchennübergreifend einsetzbar.

Employees 50 up to 249

Turnover €10m - €50m

Funding

About this organisation		
Main areas covered	Microstructure characterisation, Microstructure simulation, Image analysis, Material characterisation/testing, Terahertz, millimetre waves	
Infrastructure	Computer tomograph, DMTA device, (mobile) terahertz imaging, (mobile) microwave imaging, Short coherence measuring system	
Certifications		
Keywords		
Memberships		

Overview of lightweighting expertise

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	Research	N Development	Aanufacturing & Supply
Offer			
Products Software & databases	\checkmark	\checkmark	\checkmark
Services & consulting Consulting, Validation, Simulation	~	\checkmark	\checkmark

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	Research	N Development	lanufacturir & Supply	
Field of technology				
Design & layout Lightweight manufacturing, Lightweight design, Hybrid structures, Lightweight construction concepts, Lightweight material construction	\checkmark			
Functional integration				
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), Materials analysis, Destructive analysis, Non-destructive analysis	~	\checkmark	~	
Modelling and simulation Crash behaviour, Loads & stress, Life-cycle analysis, Multiphysics simulation, Optimisation, Processes, Structural mechanics, Materials, Reliability validation	~	\checkmark	~	
Plant construction & automation				

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Manufacturing process				
Additive manufacturing				
Coating (surface engineering)				
Fibre composite technology				
Forming				
Joining				
Material property alteration				
Primary forming				
Processing and separating				
Textile technology				
Material				
Biogenic materials				
Cellular materials (foam materials)				
Composites				
Fibres				
Functional materials				
Metals				
Plastics				
Structural ceramics				

Contacts

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