

INNOVATIONS FOR PRODUCTION

We take advantage of synergies to
push the research and development of:

**Lightweight Casting
Technologies**

Fibre-Reinforced Composites

**Automated Production
Technologies**

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www.igcv.fraunhofer.de/en



Innovations for the production of tomorrow

As a future Fraunhofer institute, the Augsburg research institution undertakes **production and process engineering research** with direct links to application. With the aim of sustainably reducing the consumption of resources in manufacturing companies and achieving a technological lead, the more than 80 researchers of the Fraunhofer IGCV generate innovations for the German industry. The competences range from material sciences to structural mechanics to manufacturing technology and production. **Automotive, aircraft, plant, and mechanical engineering** represent the most important application sectors; their requirements define the basis for research at the Fraunhofer IGCV.

The main focus is for instance on providing new structures for **lightweight construction** that differentiate through manufacturing concepts and joining technologies. Numerous research approaches indicate that the combination of metal and fiber-composite materials allows for a stronger utilization of the added-value of lightweight construction compared to singular application. The focusing on hybrid constructions and corresponding production systems furthermore offers potential for strongly integrated solutions and innovative design concepts in lightweight construction. Foundries and the CFRP producing and processing industry, which are still under a strong manufacturing influence, are in need of further-reaching intelligent automation and digitization of processing steps.

Not only in this sector is the integration of competences from the **industry 4.0** environment considered an important component for the competitive production of tomorrow. Industry 4.0 in addition to technical advancements also brings about changes in the working world. Realizing industry 4.0 in a company and for instance implementing it in an existing production process requires a wide

understanding of different industry 4.0 technologies – such as cyber physical systems (CPS), intelligent sensor networks, or assistance systems – from developers and users. With its training factory for networked production for instance, the Fraunhofer IGCV strongly advocates the transfer of digital technologies in local companies.

Cooperating with us

The Fraunhofer IGCV strictly focuses on the need of the industry and sees itself as a value-adding service provider for manufacturing companies. With short- and medium-term bilateral projects, the Fraunhofer IGCV supports the process of creating new solutions. Collaboration in medium- and long-term research projects or cooperations enables the utilization of future potentials at an early stage.

Facts and figures

The Fraunhofer Research Institution IGCV was founded on July 01, 2016 by the project group of resource-efficient mechatronic processing machines of the Fraunhofer IWU and the Fraunhofer branch of Functional Lightweight Design FIL of the Fraunhofer ICT. The institute management, administration, and the fields of research of automation, processing, and composites are located at two sites at the Augsburg headquarters. The composite sector competences are concentrated in the building at Augsburg Innovationspark completed in 2013. Processing technology competences are located at Augsburg martini-Park. It is for example home to the training factory for networked production (www.lvp-bayern.de). Relocation to the second building at Augsburg Innovationspark, which is under construction at present, is scheduled for 2019. At the Garching site, a casting technology department will be set up; its buildings will be ready to move into in 2021. In close cooperation with the

Augsburg universities, we furthermore persistently strive to establish a European center for resource efficiency.

Our Services

CASTING TECHNOLOGY

- Casting process simulation
- Molding materials
- Sand and gravity die casting

COMPOSITES

- CFRP manufacturing engineering
- Efficiency and balancing
- Materials and test engineering
- Online process monitoring
- Hybrid composite constructions
- Recycling

PROCESSING TECHNOLOGY

- Additive manufacturing
- Intelligent networked production
- Flexible production
- Networked modeling and simulation
- Resource efficiency in processes

CONTACT US

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1 Digitalization of Production

2 The Fraunhofer IGCV team