The Fraunhofer Institute for Casting, Composite and Processing Technology IGCV stands for applied research. Our unique selling point lies in interdisciplinary solutions in the fields of foundry, composite and processing technology. We enable continuous innovations from materials technology to supply chain. Additive manufacturing is a cross-divisional core competence of the Fraunhofer IGCV, which comprises ca. 30 scientists.

As one of the largest production technology research institutes in Germany, the Institute for Machine Tools and Industrial Management comprises two chairs of the TUM Department of Mechanical Engineering at the Technical University of Munich. The research contents and main topics are in the fields of additive manufacturing, machine tools, assembly technology and robotics, joining and separation technology as well as in the field of production management and logistics.

Fraunhofer Institute for Casting, Composite and Processing Technology IGCV
Am Technologiezentrum 10
86159 Augsburg
www.igcv.fraunhofer.de

Institute for Machine Tools and Industrial Management
TUM Department of Mechanical Engineering
Technical University of Munich
Boltzmannstr. 15
85748 Garching near München
Germany
www.iwb.mw.tum.de/en

Contact:
Prof. Dr.-Ing. Christian Seidel
Phone +49.821.906.78127
info@AMLab.de
Additive manufacturing is one of the most important research areas of the two research institutes: Institute for Machine Tools and Industrial Management of the Technical University of Munich and Fraunhofer IGCV. Therefore, the Additive Manufacturing Laboratory (AMLab) was established in 2012, in which machines and test technologies of both institutions as well as the personnel resources are pooled in partnership.

As one of the largest research laboratories for additive manufacturing with sites in Augsburg and Munich, it offers ideal conditions for further technological development and improvement. In order to ensure the best possible transfer of our results, we offer the following possibilities for cooperation:

- Contract research and development
- Industrial consortiums
- Seminars, workshops and continuing education
- Advice on funding opportunities
- Publicly funded research projects

**Manufacturing processes/ machines engineering at AMLab**

- Laser-based Powder Bed Fusion of Metals beam (different systems from manufacturers such as Aconity, EOS, GE-Concept Laser and SLM Solutions)
- Arc-based Directed Energy Deposition
- Laser-based Powder Bed Fusion of Polymeres
- Multi-Jet-Modelling
- Binder Jetting (also inorganic sand binder systems)
- Material Extrusion (also fiber-reinforced plastics)
- Thermal post-treatment

**Materials we can process**

(Other materials available on request)

**MATERIAL**

- Nickel-base alloys
- Titanium alloys
- Case hardening steel
- Precious Metals
- Tungsten connections
- Copper alloys
- Aluminium alloys
- Tool steels
- Stainless steels
- Magnesium
- Tungsten
- Special materials

**PLASTIC MATERIALS**

- Polyamide
- PMMA
- Acrylic Photopolymers
- Polystyrene
- Biopolymers

**COMPOSITE**

- PA 6 Carbon
- PA 6 Glass fibre
- PA 6 Aramid

**SAND MATERIALS**

- Quartz sands
- Special sands
- Ceramic sands

**CERAMICS AND HARD METALS**

- Al₂O₃
- WC-Co

**Competences and services**

**MATERIAL**

- Process qualification for new materials
- Material characterization
- Material testing
- Material management

**DESIGN**

- Function integration (cooling, coating, kinematics, targeted compliance)
- Lightweight construction (power flow, topology)
- Construction/design according to requirements (construction training)

**PROCESS**

- Process optimisation
- Process monitoring
- Simulation-supported design
- Multi-material processing
- Basic research

**PRODUCTION**

- Potential analysis of the component-spectrum / component screening
- Process chain design and evaluation
- Determination of profitability of manufacturing alternatives
- Technology and Components selection
- Integration into existing manufacturing processes and corporate structures

**MOULD CONSTRUCTION**

- Cores for casting processes
- Near-contour tool cooling systems