

# Bachelor or master thesis

**Topic:** Investigation of the local mechanical and physical properties of die-cast components as a function of their wall thickness

**Start:** Beginning 2024

**Description:** By means of aluminium die casting, dimensionally accurate components with low wall thicknesses can be produced in large quantities at low cost. Aluminium as a material is characterized by high electrical and thermal conductivity in combination with a favourable strength-to-density ratio, which makes the material ideal for use in lightweight structures. Silicon in particular plays a decisive role in casting alloys. By means of modification elements, the shape of the eutectic silicon can be changed to influence the conductivity and also the mechanical properties.

In this work, investigations are to be carried out on the local expression of the mechanical and physical properties as a function of the production parameters of die cast components. For this purpose, die cast components of different wall thicknesses of one or more alloys that are modified are to be considered. The required die cast components can be produced at the WTM within the scope of the work itself or will be made available for the investigations.

**Location:** Erlangen

**Supervision:** **Felix Feyer** [felix.feyer@fau.de](mailto:felix.feyer@fau.de)

Group leader: Peter Randelzhofer

Responsible professor: Prof. Körner

The supervisor can also provide information on other topic opportunities in the areas of conductivity in aluminium die casting and alloy development if interested.

