

Bachelor or master thesis (German or English)

Topic: Investigations into the influence of modification on the properties of die cast components with different wall thicknesses

Start: Beginning 2025

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. Alloying elements are essential for increasing mechanical properties and castability.

Silicon in particular plays a crucial role in casting alloys. Refining elements can be used to change the shape of eutectic silicon to influence conductivity and mechanical properties. In this work, a further understanding of the influence of a refinement as a function of the wall thickness of a die cast component and the resulting mechanical and physical properties will be investigated.

For this purpose, die cast components of different wall thicknesses of one or more modified alloys will be investigated. 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

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.

