

MSE 2024

24 - 26 Sep 2024 (Darmstadt)

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Topic S: Structural Materials

S07: Structural lightweight magnesium alloys: Processing - Microstructure - Property relationship

The extended use of structural lightweight materials is still retarded today due to limited knowledge on the range of reliable mechanical property profiles for the envisioned applications. In this context, progress has been made in recent decades in the production of novel Mg alloys to overcome these limitations. However, considerable efforts are still required to fully reveal the interaction between material processing, microstructure and properties.

The symposium aims to address the structural properties of lightweight magnesium alloys with microstructure design through alloy and process development to achieve improved, reliable mechanical properties for their intended sustainable use.

This includes advanced material characterization techniques on various length and time scales, microstructure adjustment through alloying, thermomechanical treatment and advanced material modelling to determine the best combinations of composition, processing and properties for the intended specific application. This symposium will discuss synergies in processing and developing alloys for an extended and sustainable use.

Symposium Topics:

- Alloy and process design and microstructure engineering: advanced material modeling, latest processing technologies and innovative alloy design concepts.
- Advanced microstructure characterization techniques: HR-TEM, FIB, APT, in-situ and 3D microstructure characterization, 3D-EBSD, FIB.
- Thermomechanical processing and mechanical properties including multi-axial formability. (d) Deformation, damage and fracture.

Symposium Organizer



Dr. Jan Bohlen
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Dr. Dietmar Letzig
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