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## Hysteresis Design of Magnetic Materials for Efficient Energy Conversion

**Tuesday, 22 Sept. 2020, 09:00 s.t., TU Darmstadt, Zoom (s. below)**



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## Additive manufacturing of shape memory Heusler alloys

Additive manufacturing (AM) allows for realization of components of unprecedented geometrical complexity. Due to the principle of layer-wise manufacturing, topologically optimized components can be manufactured straightforward. Techniques employed comprise laser- and electron beam powder bed fusion (L-PBF (SLM) and E-PBF (EBM)) as well as laser metal deposition (DED). All techniques are characterized by distinct features in a very similar way: relatively small melt pools, rapid solidification and intrinsic heat treatment. Thus, all these techniques allow to establish unique microstructures.

The present paper presents pathways towards robust AM processing of Heusler type shape memory alloys (SMAs). General aspects regarding AM of SMAs will be introduced first. Afterwards, focus will be on AM of Heusler type Co-Ni-Ga. Results shown will highlight prospects and challenges by detailing microstructure evolution, process induced defect structures, adequate post treatments and eventually mechanical and functional properties.

[Zoom information:](#)

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