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TECHNISCHE UNIVERSITÄT DARMSTADT

UNIVERSITÄT DUISBURG ESSEN

Offen im Denken

Hysteresis Design of Magnetic Materials for Efficient Energy Conversion

Tuesday, 20 June 2023, 9:00 s.t., TU Darmstadt, in Person and via Zoom

Dr. Juliane Thielsch

Fraunhofer-Institut für Werkzeugmaschinen und Umformtechnik IWU, Dresden

Metal additive manufacturing using Laser Powder Bed Fusion – from stents to permanent magnets

Abstract:

Additive manufacturing of metallic components by means of laser powder bed fusion (LPBF) is becoming an established processing technology for new complex-shaped products and small series. The benefit of this technology is the high degree of geometrical freedom and short time-to-market. LPBF is currently limited to structural metals and alloys, but also functional materials, such as shape memory alloys or magnetic materials, receive more interest.

In this presentation research scopes of the department Laser Powder Bed Fusion at Fraunhofer IWU in Dresden will be presented as well as results on the additive manufacturing of Nd-Fe-B permanent magnets using LPBF.

About the speaker:

Juliane Thielsch studied material science at the Technical University of Dresden from 2002-2008. With a scholarship from the Hans L. Merkle-foundation (today Bosch Foundation) she started a PhD position at IFW Dresden working on permanent magnets, focusing on interaction domains in hot deformed Nd-Fe-B single phase and composite magnets. After two postdoctoral positions she was appointed as an Attract Group leader at Fraunhofer IWU in Dresden with the aim of manufacturing Nd-Fe-B permanent magnets additively using Laser Powder Bed Fusion. Since October 2020 she is heading the department „Laser Powder Bed Fusion" at Fraunhofer IWU in Dresden.