

Robert Bernhard

Civan Lasers Europe GmbH

Topic

Accelerating Additive Manufacturing: Process Enhancements via Dynamic Beam Shaping

Advanced dynamic beam lasers (DBL) offer significant potential within Powder Bed Fusion and Additive Manufacturing. By enabling rapid, on-the-fly modulation of the laser beam's shape and energy distribution, DBL provides enhanced control over the melt pool dynamics. The results show that this capability unlocks pathways to boost productivity, optimized high-speed processing strategies and novel hatching patterns. Tailoring the beam profile can also minimize defects and refine material microstructures.

About the Speaker

Dr.-Ing. Robert Bernhard has been the Application Lab & Branch Manager ppa. at Civan Lasers Europe GmbH in Hannover since August 2023. His specialty involves developing laser welding processes using dynamic beam shaping. Previously, he worked at Laser Zentrum Hannover e.V. (2018-2023), leading the AM - Metals Group from 2021, and completed his doctorate focused on multi-material Additive Manufacturing at TU Clausthal in 2023.