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QIRT-2024-029**ABSTRACT****PRESENTATION****PAPER**

Rainer Krankenhagen received a diploma degree in solid state physics in 1990 and a Ph.D. from Humboldt University of Berlin in 1996. His thesis was dealing with material research for photovoltaics. Since 2008 he works as a senior scientist in the Federal Institute for Materials Research and Testing (BAM) in the field of nondestructive testing.

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THERMOGRAPHIC INVESTIGATION OF THE ANISOTROPIC BEHAVIOUR OF ADDITIVELY MANUFACTURED AISI316 STEEL USING DED-ARC

Direct Energy Deposition-Arc (DED-Arc) is an additive manufacturing process that uses an electric arc to melt and deposit metal wire layer by layer, creating complex metal structures. This process enables faster deposition rates in comparison to powder-based processes.

In this study a steel block measuring $25 \times 4 \times 16 \text{ cm}^3$, made of AISI 316, was fabricated using a DED-Arc process. This set-up included a 6-axis industrial robot, a Metal Inert Gas (MIG) power source and additional sensors for monitoring the process.