

## **X-ray diffraction analysis of additively manufactured AlSi10Mg alloy**

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The paper deals with the analysis of residual stresses of additively manufactured AlSi10Mg alloy samples. The influence of the 3D printing strategy of the SLM (Selective Laser Melting) technology was proofed by X-ray diffraction. The phase analysis identified the intermetallic phase Mg<sub>2</sub>Si in addition to the major phases (solid solutions of Al and Si). The inhomogeneities of tensile residual stresses around the circumference of the tested samples were analyzed. Areas of steep changes in residual stresses (especially tensile) can be potential areas for crack initiation. Inherent anisotropy was studied by tracing the plasticity surface from which a yield stress of 160 MPa was determined. After tracing, a decrease in tensile residual stresses was observed.

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