

Additive manufacturing transient phase and pore effects of stainless steel for low cycle fatigue

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Abstract

Additive manufacturing technology has received more and more attention in recent years due to its ability to customize high-value products. In this study, the additive manufactured 15-5 PH stainless steel is produced by selective laser melting (SLM) in which the building direction is parallel to the tensile direction. We employ *in-situ* neutron diffraction at room temperature to investigate the cyclic-induced transient phase and pore effects in the low-cycle fatigue.

Keywords: Additive manufacturing, 15-5PH stainless steel, *in-situ* neutron diffraction, low-cycle fatigue