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Fatigue and Fracture Behaviour of Additively Manufactured Mechanical Components

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The advent of additive manufacturing (AM) processes applied to the fabrication of structural components creates the need for design methodologies supporting structural optimization approaches that take into account the specific characteristics of the process. While AM processes enable unprecedented geometrical design freedom, which can result in significant reductions of component weight, on the other hand they have implications in the fatigue and fracture strength due to residual stresses and microstructural features. This is linked to stress concentration effects and anisotropy that still warrant further research. This Special Issue of Applied Sciences brings together papers investigating the features of AM processes relevant to the mechanical behavior of AM structural components, particularly, but not exclusively, from the viewpoints of fatigue and fracture behavior. Although the focus of the issue is on AM problems related to fatigue and fracture, articles dealing with other manufacturing processes with related problems are also be included.

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