



*metals*



*Special Issue Reprint*

## **Technological Aspects in Fatigue Design of Metallic Structures**

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Traditional manufacturing processes, such as welding and casting, and modern techniques, such as additive manufacturing, can significantly affect the local material properties of metallic materials. To ensure the safe and reliable operation of engineering components and structures, fundamental knowledge of the manufacturing effects on fatigue performance is of the utmost importance. Hence, this Special Issue focuses on the fatigue design of metallic structures, considering the influence of technological aspects. Approaches based on local stress/strain, as well as fracture-mechanics-based concepts, are applied, considering local manufacturing-process-dependent characteristics, such as microstructure, hardness, porosity/defects, surface topography, and/or residual stress state. Moreover, probabilistic methods are utilized which enable a link between statistically distributed local characteristics and failure/survival probability, enabling the advanced fatigue design of metallic structures.



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