

Special Issue on  
**Fatigue Properties of Notched Metallic Components  
Produced by Additive Manufacturing**

# CALL FOR PAPERS

Additive manufacturing is a process by which 3D objects are built layer-by-layer, through simultaneous energy delivery and material deposition. In this way, metallic components may be obtained from powders via melting, effected by a laser or an electron beam source. The resulting material's properties are highly dependent upon the processing parameters; for example, variations in thermal history can result in drastically different microstructures. Indeed, the microstructure of additively manufactured components can be highly anisotropic and reach densities greater than 99.5%. In orthopaedic implant and aerospace material design, the presence of geometrical fillets is unavoidable and can lead to significant local stresses. Complex shapes lead to notches with different curvature radii that may reduce potential load-bearing capacities.

This special issue aims to assess the fatigue strength of notched metallic samples produced by additive manufacturing. Submitted manuscripts are expected to explore the influence of process parameters, heat treatment, and microstructure, upon fatigue behaviour of components built by this method. Investigation of the relative influence of sharp and blunt notches is encouraged. Efforts to minimise the frequency and impact of notches, with assessment of the resulting fatigue properties, are also welcome. Relevant review articles, describing the state of the art and emerging trends in the field, may be considered; check with the Special Issue Editor in Chief before commencing writing.

Potential topics include but are not limited to the following:

- ▶ Fatigue strength of metallic additive manufactured specimens weakened by sharp or blunt notches
- ▶ Strain energy density criterion applied to additive manufactured specimens
- ▶ Influence of process parameters on fatigue behaviour of components weakened by sharp or blunt notches
- ▶ Influence of heat treatment of fatigue behaviour of components weakened by sharp or blunt notches
- ▶ Notch sensitivity of additive manufactured specimens

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/amse/fpam/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

**Special Issue Editor in Chief**

Paolo Ferro, University of Padova,  
Vicenza, Italy  
*ferro@gest.unipd.it*

**Guest Editors**

Filippo Berto, NTNU, Trondheim,  
Norway  
*filippo.berto@ntnu.no*

Jan Torgersen, NTNU, Trondheim,  
Norway  
*jan.torgersen@ntnu.no*

**Submission Deadline**

Friday, 20 October 2017

**Publication Date**

March 2018