

## MODELLING OF FAILURE OF ADDITIVELY MANUFACTURED PARTS

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### ABSTRACT

The progress of Additive Manufacturing (AM) techniques in the fabrication of structural components and the major improvement in their quality call for structural optimisation methods that take into account the unique characteristics of the process. While AM allows for exceptional geometrical design freedom and leads to significant reduction of the component weight, the fabricated components remain vulnerable to damage and fracture. The prediction of the post-manufactured properties of AM components and their failure mechanics is a challenging aspect. Commonly faced anisotropy and its relation to stress concentration effects require further study.

The goal of this mini-symposium is to gather contributions that explore aspects of AM techniques that are pertinent to the mechanical behaviour of AM structural components, notably, but not solely, from the viewpoints of damage, fatigue, and fracture behaviour. Studies of all facets of computational damage and fracture mechanics of polymeric, metallic and concrete additively manufactured components by different AM processes are welcome. Papers on failure analysis of the process, performance and buildability of AM components are also encouraged. Damage and fracture mechanics of AM components from different perspectives: continuum, classical finite element, multiscale, etc., may be contemplated.