

ECF23, European Conference on Fracture 2020
June 27 – July 3, 2020. Funchal, Madeira, Portugal

TC15 Structural Integrity of Additive Manufactured Components

Additive manufacturing (AM) techniques offer the potential to economically fabricate customized parts with complex geometries in a rapid design-to-manufacture cycle. Before benefits can be explored in critical load bearing applications, the basic understanding of the mechanical and functional behavior of these materials must be substantially improved at all scales. In particular, a better understanding of fracture and fatigue performance is key. The symposium will shed light on the basic physical phenomena of fatigue and fracture of AM materials and develop effective criteria for the design of unprecedented high performing components for next generation automotive, aerospace and biomedical applications.

The main topics will be as follows:

- ❖ Fracture of AM materials
- ❖ Fatigue of AM materials
- ❖ Wear and Corrosion of AM materials
- ❖ Residual stresses in AM materials
- ❖ Effects of thermal and mechanical treatments
- ❖ Effect of surface modifications on mechanical and chemical properties
- ❖ Microstructure of AM materials
- ❖ Nanomechanical characterization of AM materials
- ❖ Structural integrity of biomaterials
- ❖ Industrial applications and certification
- ❖ Design of printed assemblies and hollow structures
- ❖ Topology optimization
- ❖ Bioinspired Design and Materials
- ❖ Non-destructive testing and health monitoring
- ❖ Digitalization and AM materials
- ❖ AM for electronics and photonics
- ❖ Computational property and process prediction
- ❖ Metamaterials

All contributions in the form of extended abstracts will be peer reviewed by the members of TC15 Scientific Committee. Full papers will be published in a special issue of the ESIS scientific journals (Elsevier) upon peer review and acceptance.

Organizing Committee

Prof. Filippo Berto, Norwegian University of Science and Technology (Chair)

Prof. Luca Susmel, University of Sheffield

Prof. Liviu Marsavina, University of Timisoara

Prof. Nima Shamsaei, Auburn University

Dr. Mohsen Seifi, ASTM