

## FATIGUE IN ADDITIVE MANUFACTURING: FROM MATERIAL PROPERTIES TO PARTS DESIGN

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### ABSTRACT

This session is dedicated to the fatigue of materials and structures obtained by additive manufacturing. All aspects will be covered: experiments, modeling, numerical simulations and design methods. The effect of post-treatments will also be addressed: surface finishing, heat-treatments, stress relief, etc. Industrial applications are also warmly welcomed to illustrate the passage from materials to components, design methodologies and qualification. The particular case of architected materials is also included in this session.

Keywords:

- High-cycle and Very High-cycle fatigue
- Thermomechanical and Low-cycle fatigue
- Innovative theoretical approaches, computational and analytical methods including IA based methods
- Process - microstructure - fatigue interactions in AM alloys
- Fatigue of meta-materials and lattice structures
- Fatigue crack propagation
- Life prediction methodologies for structural materials
- Damage and defects tolerance and fatigue life
- Fatigue in harsh environments (corrosion, low and high temperature, etc)
- Design and Fatigue strength assessment of additive manufactured components
- Qualification of AM components