

ADVANCED MODELING AND MULTIPHYSICS METHODS FOR THE HEALTH MONITORING ANALYSIS OF COMPOSITE STRUCTURES

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ABSTRACT

The rapid growth in smart-related technologies and the increasing demands for the understanding via modelling, simulation and experimental validation of intelligent materials or engineering components capable of performing in Multiphysics (i.e. thermo-chemo-electro-magneto) have driven industries toward greater autonomous and efficient systems. These trends would lead to greater demands on structural health conditions to ensure safety and autonomy, particularly for aerospace, heavy machinery, and civil infrastructures.

This session seeks to gather researchers working at the frontier of modelling, simulation and experimental validation in these scenarios, where advanced Multiphysics methods are applied for the analysis of advanced and hybrid composite materials, 3D-printed materials, bio-inspired structures, multifunction material, to name but a few, with a focus on the design of structures embedded with smart materials as sensors for structural health monitoring purposes.