International Symposium on Aircraft Materials – ACMA 2010
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Mini-symposium on

Composites, Smart Materials, Control and Health Monitoring

Organized by:

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Composite materials are currently being used instead of classical metal ones even for load carrying structural functions in aeronautic, aerospace, marine, automotive and railway transportation structures. This tendency is expected to grow rapidly and, for some applications, composite materials may be dominant in a near future. Although composite materials have undeniable advantages over classical materials, they are known to be sensitive to vibrations and damages. This explains the current big research interests in vibration control and damage identification techniques that might by integrated in composites. These require surface-bonded or preferably embedded sensors and actuators working either passively (without input energy) or actively (with input energy). The integration of the so-called *smart* or *active* materials, such as piezoceramics, shape memory alloys, magnetostrictives, electrostrictives, optical fibres, etc., in composites renders them *multifunctional* in the sense that they can assure integrated sensing, actuation, vibration damping, noise reduction and health monitoring. This leads to the so-called smart composites. The *multidisciplinary* nature of these *advanced* composites imposes adequate coupled *multi-physics* representation, suitable *modelling*, realistic *simulations* and representative *experimentations* for the models validations and proof of concepts or for the materials properties direct/inverse identification at both sample and structural levels..

Contributions related to any of the mini-symposium keywords of composites, smart materials, control and health monitoring are welcome; the following list is only indicative:

- Composites and Sandwich Materials and Structures
- Smart Sensors and Actuators
- Identification of Composite and Smart Materials Properties
- Non linear smart materials behaviour
- Damage Tolerant Composites Design
- Passive, Active and Hybrid Vibration, Noise and Shape Control
- Structural Morphing & Health Monitoring
- Multi-objective and Robust Optimal Design
- Multi-scale Modelling and Simulation
- Evolutionary Algorithms for Design, Optimization, Control and Health Monitoring
- Experimental Models Benchmarking and Proof of Concepts

Abstracts (see instructions in http://www.enit.fr/ACMA2010/index.html) should be addressed to abstract_ACMA2010@enit.fr with a copy to the present symposium organizers **benjeddou@supmeca.fr & moussa.karama@enit.fr**.

Authors of **presented contributions** will have the opportunity to submit **extended versions** of their contributions to special issues of these journals: *Computers, Materials & Continua* (http://www.techscience.com/cmc/index.html) and *Structural Control & Health Monitoring* (http://www3.interscience.wiley.com/journal/117861846/grouphome/home.html).