

## **Adaptive Structures for Aeronautical Applications**

During the last decades, several examples of smart structural concepts have been investigated for different applications in aeronautics. At the same time, breakthrough technologies have emerged and properly matured to offer the right leverage for a step-change in the way of designing the next generation aircraft towards the development of advanced, fully adaptive configurations.

Aircraft structural components can be effectively conceived not only in the light of their primary load-bearing function, but rather as an integrated system of actuated and controlled components, harmoniously accomplishing advanced and intelligent tasks: they can sense pressure, strain, or any physical parameter defining their specific operative condition, and initiate an appropriate action to optimize their shape accordingly. All this, with the ultimate goal of morphing the aircraft aerodynamic surfaces in compliance with the most efficient shapes at each flight regime and/or to enable load alleviation functionalities. Several aspects have been addressed and are currently under investigation to bridge the gap between futuristic configurations and industrially relevant products, ready for certification and real flight operations. This symposium aims at highlighting the most relevant signs of progress made in this vibrant research field, with specific emphasis on industrial applications of adaptive structures. Potential topics of discussion will include but are not limited to the following:

- Methodologies and approaches for adaptive structures design and validation;
- Adaptive structural architectures (Compliant, Mechanisms-based architectures, Hybrid layout) and smart materials;
- Sensing, actuation, and control of adaptive structures;
- Experimental approaches for adaptive structures characterization and qualification;
- Reliability of adaptive structural systems and Fault and Hazard Analysis;
- Safety and certification aspects of adaptive structural systems.

***Please express your interest to contribute to this symposium when submitting your abstract.  
Thank you.***