



PhD in INGEGNERIA AEROSPAZIALE / AEROSPACE ENGINEERING - 39th cycle

THEMATIC Research Field: DEVELOPMENT OF ACTIVE FLUTTER SUPPRESSION TECHNOLOGIES

Monthly net income of PhDscholarship (max 36 months)
€ 1400.0
In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity	
Motivation and objectives of the research in this field	<p>To satisfy the new stringent requirements in terms of environmental impacts, future aircraft will be characterized by more efficient and more flexible structures, unconventional configurations such as very high aspect ratio, maybe distributed propulsion, combined with innovative technologies such as massive adoption of active controls. This kind of structures will be prone to many and different aeroelastic phenomena, including flutter instability, that must be avoided. Despite the availability of different technologies to actively suppress the flutter, they have not been applied to real aircraft due to the many open issues, among the other, robustness and certification aspects. It is expected that the PhD candidate will be able to manage all the aeroservoelastic aspects covering this research aiming at the development and validation of active flutter suppression systems.</p>
Methods and techniques that will be developed and used to carry out the research	<p>The research activity carried out under the AeroStructures Design Laboratory (ASDL) specialized in the development of multi-fidelity analysis and design methods to enable fast and efficient generation of aero-servo-elastic models. The candidate will need to manage, use and develop in an autonomous way topics such as: automatic generation of low-medium fidelity aero-structural models; fast structural sizing; aeroelastic analysis and optimization; active aeroelastic control, such as loads alleviation and flutter suppression, including wind tunnel validation.</p>



Educational objectives	Enhance a multidisciplinary approach to aircraft design; improve the capability to manage the entire set of aircraft requirements; acquire familiarity with the numerical tools typical of conceptual and preliminary aircraft design phase, including the novel aspects related to active control technologies; open mind to approach aircraft design problems via a blended mix of numerical and experimental tools.
Job opportunities	The acquired scientific skills cover a wide range of engineering applications and are strongly requested by high technology industries, non limited to the aerospace field.
Composition of the research group	1 Full Professors 1 Associated Professors 1 Assistant Professors 4 PhD Students
Name of the research directors	Prof. Sergio Ricci

Contacts	
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	700.0 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information	
The PhD candidate will receive a desk, possibly through a hot-desking procedure, and a personal computer, if needed. Apart from the compulsory ones, the PhD candidate will have the opportunity to follow additional courses and receive economic support to attend summer schools and participate in conferences. There will be the possibility of paid teaching assistantship.	