



PhD in INGEGNERIA AEROSPAZIALE / AEROSPACE ENGINEERING - 37th cycle

THEMATIC Research Field: INNOVATIVE CONCEPTS AND SCENARIO STUDIES FOR NEXT-GENERATION AIRCRAFT

Monthly net income of PhDscholarship (max 36 months)

€ 1325.0

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

Today, the development of hybrid-electric and other innovative aircraft technologies in larger vehicles is one of the main challenges towards more sustainable air transportation. The identification of scalable technologies that are reusable across vehicle classes and of those who may provide significant advantages when applied to a specific class is of paramount importance to orient research and development activities. This can be pursued through dedicated system modelling and performance evaluation while investigating the impact of such technologies on the design of future aircraft and their related infrastructures. The proposed research effort is expected to contribute to the EU-funded Clean Sky SIENA project, as well as to other activities related to the development of unique methods and technologies conceived at the Flight Mechanics & Flight Systems research laboratory (FMSlab), Department of Aerospace Science and Technology.

Methods and techniques that will be developed and used to carry out the research

The PhD project shall continue to strengthen and push forward the methodologies that have been recently introduced at the Flight Mechanics & Flight Systems research laboratory (FMSlab), Department of Aerospace Science and Technology, related to hybrid-electric conceptual and preliminary aircraft and aircraft system design, to the sizing of airport infrastructures, and the prediction of the environmental impact. Building on



	previous successful EU-funded project results (MAHEPA and UNIFIER19), the PhD project aims at extending the capabilities in modelling and analyzing innovative aircraft configurations and their potential applications.
Educational objectives	Expertise in the development of design, operational analysis, and performance analysis methods for hybrid-electric and unconventional configuration aerial vehicles.
Job opportunities	Research project investigator/manager. Senior aeronautical engineer for manned/unmanned aircraft design, analysis, and testing and for the planning of turnaround operations and energy budget of air transportation services.
Composition of the research group	0 Full Professors 1 Associated Professors 1 Assistant Professors 0 PhD Students
Name of the research directors	Lorenzo Trainelli

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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	564.01 €
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, a personal computer. Apart from the compulsory ones, the PhD candidate will have the opportunity to follow additional courses, receive economic support to attend summer schools, and participate in conferences. There will be the possibility of paid teaching assistantship.