PHD VIRTUAL OPEN WEEK 2021
PhD program in Aerospace Engineering

Marco Gherlone
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→ Peculiarities of the program
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Research topics
Research topics

Research projects are available in the framework of the activities conducted by the research groups referring to the Academic Board and mainly belonging to the Department of Mechanical and Aerospace Engineering

• Aerospace propulsion
• Aircraft and Engine Structural Design and Optimisation (AESDO)
• Aircraft modelling, simulation and control
• ASTRA: Additive manufacturing for Systems and sTRuctures in Aerospace
• Boundary layer flow, separation and control
• Design of aerospace systems and technologies
• Design of aircraft and of advanced composite aerospace structures
• Dynamics, control and flight simulation
Research topics – Flight Mechanics

UAVs for extreme environmental conditions

Strategies for collaborative aerial autonomous vehicles

Aircraft certification by simulation
Research topics – Structures

Monitoring and reconstruction of deformed shape and applied loads

Analysis of structural components produced in additive manufacturing

Multifunctional components for next generation Cubesats
Research topics – Systems

Conceptual design of high-speed transportation systems

Thermal analysis of small space platforms

Prognostics of aerospace systems
Research topics – Fluid Dynamics

Analysis of turbulent flows

Particle motion in turbulent flows

Cardiovascular fluid dynamics
Research topics – Propulsion

- Space trajectories optimization
- Advanced concepts for rocket engines
- Turbo-machinery fluid dynamics
Peculiarities of the program
Peculiarities of the program

- Strong connections with aerospace companies (in particular LEONARDO), some funding and co-funding the PhD grant

- Strong international framework
  - collaborations with foreign universities and research centers (ESA, RMIT, NASA JPL)
  - 2017 – 2020: 22 out of 30 graduated PhD have spent an average of 8 months abroad

- Strong support from the Department of Mechanical and Aerospace Engineering Department of POLITO:
  - research experience
  - experimental facilities
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<td>8 @ Italian Companies (Leonardo, AVIO AERO, TASI, founded by PhD)</td>
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PhD graduated | Cycles 29th-32nd | 2017-2020 | 30 people
Marco Esposito
(3° year completed)

Co-tutelle agreement with Royal Melbourne Institute of Technology (RMIT)

Experimental activities performed using the facilities available @POLITO
Testimonials

Caterina Gallo
(Graduated on January 28, 2021)

Development of a mathematical model of the cardiovascular system for clinical and space applications

Collaboration with two physicians at Karolinska Institutet (Stockholm)

"PhD is an opportunity to deeply study something you are really interested in, and a journey to know more about yourself"
Testimonials

Valeria Mariano
(Graduated on March 23, 2011)

PhD activity funded by AW - AgustaWestland (now Leonardo Helicopters)

Flight mechanics models and engineering flight simulator for theoretical results validation provided by AW
Employment in AW Simulation dept. following PhD graduation