

The University “Politecnico di Milano” was founded in 1863. Its mission is to teach technologies and educate students to become researchers. The University is continuously updating its tradition as a school that focuses on quality and innovation in teaching and research. Scientific research at Politecnico di Milano has always been oriented toward innovation and quality, always seeking a strong relationship with the industrial world through technology transfer. Attuning to the needs of the industrial sector helps research to continuously explore new areas and stay at the leading edge of science and technology.

Politecnico di Milano is currently articulated in 12 departments, where research is co-ordinated and carried out, and 6 schools, where education is co-ordinated and implemented. Several service Centres provide support for technical and administrative purposes.

The Dipartimento di Scienze e Tecnologie Aerospaziali (Department of Aerospace Science and Technology, DAER-PoliMi) was established within Politecnico di Milano as an autonomous institute in the 1950s. The personnel of DAER-PoliMi currently consists of 43 faculty, 27 technical and administration staff, 70 research assistants and Ph.D. students. The main activity within the Department is scientific research.

Politecnico di Milano
Department of Aerospace Science and
Technology (DAER)

Campus Bovisa
Via La Masa, 34 - 20156 Milano - Italy
Edificio B12 "Enrico Forlanini" - 2nd floor

tel. +39.02.2399.8323-24
fax +39.02.2399.8334

DIPARTIMENTO DI SCIENZE
E TECNOLOGIE AEROSPAZIALIASDL
AeroStructures Design Lab

LA MASA

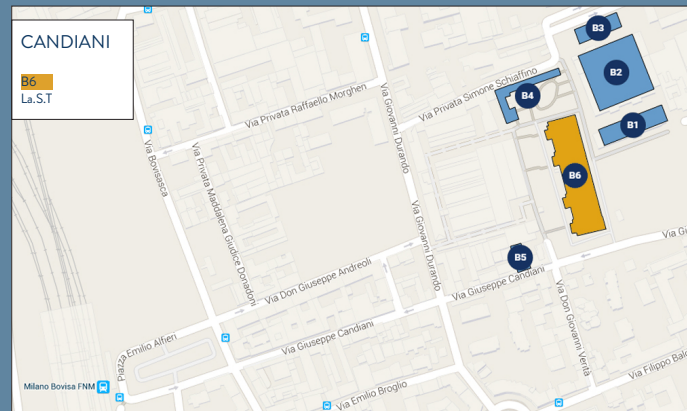
B12
Dipartimento di Scienze e Tecnologie Aerospaziali

B13
Educational Labs

B14
Aerodinamic, Experimental Test and Technological Laboratories

B16A
Space Propulsion Laboratory

B19
Wind Tunnel



SCIENTIFIC LABS

DEPARTMENT OF AEROSPACE SCIENCE AND TECHNOLOGY (DAER)

Research activities within the Aerospace Science and Technology Department (DAER) of Politecnico di Milano are organized in scientific laboratories. These laboratories represent the core of the research competences developed at DAER over the years. They are highly specialized, agile and vital competence centers.

SCIENTIFIC LABS

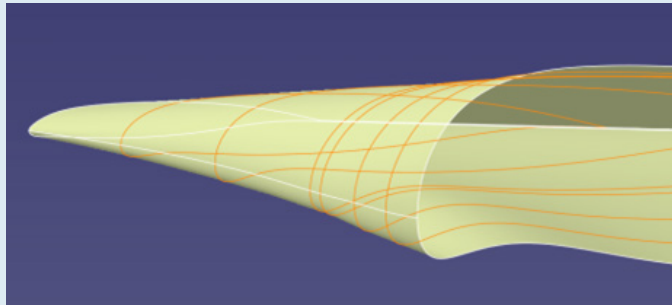
The Department has formed 14 research laboratories, which contribute to the majority of research activities.

- AMATECH - Aerospace MATERIALS and TECHNOLOGIES
- ASCL - Aerospace Systems and Control Lab
- ASDL - AeroStructures Design Lab
- AVLab - Aeroelasticity and Vibroacoustics Lab
- CrashLab
- FlowCon - Instability and Flow Control Lab
- FMSlab - Flight Mechanics & Flight Systems Lab
- FRAME - Fixed and Rotary-wing Aircraft Multidisciplinary Eng.
- PFDLab - Physical Fluid Dynamics Lab
- POLI-Wind - Wind Energy Lab
- RAL - Rotorcraft Aerodynamics Lab
- SIAMS - Structural Integrity of Advanced Materials and Structures
- SME - Space Missions Engineering
- SPLab - Space Propulsion Laboratory and Nanoenergetics

ASDL

AEROSTRUCTURES DESIGN LAB

ASDL specializes in the development of multi-fidelity analysis and design methods to enable fast and efficient generation of aero-structural models for new, environmentally friendly aerospace systems. The availability of a structural model since the beginning of design loop, i.e. at the conceptual design level, allows the designer to immediately evaluate the potential impacts from aeroelasticity on the definition of global aircraft design parameters, as well as the possible benefits from new materials and technology like morphing, in terms of global performances and weight saving.



CONTACT PERSON

Prof. Sergio Ricci

PHONE NUMBER

+39 02 2399 8319

MAIL ADDRESS

sergio.ricci@polimi.it

WEB SITE

<http://www.aero.polimi.it/en/research/research-laboratories/>

ONGOING ACTIVITIES

- Automatic generation of low-medium fidelity aero-structural models.
- Fast structural sizing, aeroelastic analysis and optimization.
- Multi-objective topological optimization of compliant structures for morphing application.
- Active aeroelastic control, including wind tunnel validation.

FUTURE PLANS

- Development of conceptual-preliminary design procedures to analyze non linear highly flexible aircraft
- Implementation of integrated aero-structural optimization procedures for the optimal design of passively and actively controlled flexible aircraft
- Design, implementation and experimental validation of morphing devices for transport aircraft based on compliant structures
- Design, implementation and experimental validation of active devices and strategies for Maneuver and Gust Loads Alleviation

ERC KEYWORDS

PE8_13 Lightweight construction, textile technology

PE8_4 Computational Engineering

PE7_1 Control Engineering

PE8_1 Aerospace Engineering

FREE KEYWORDS

- Conceptual and preliminary aircraft design.
- Active, aeroelastic and morphing aircraft.