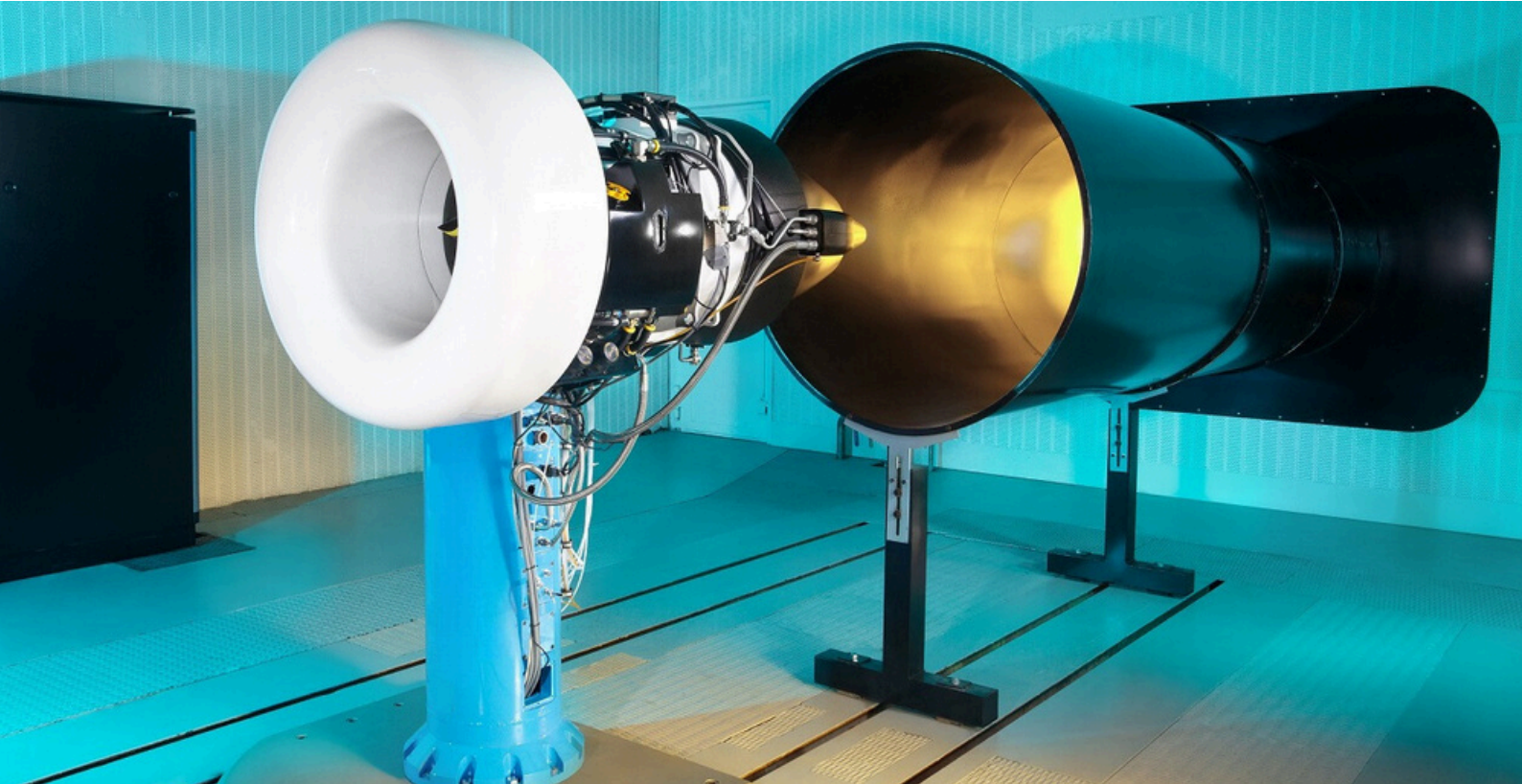




TURBOLAB
INNOVATIVE AIRCRAFT PROPULSION



TURBOLAB

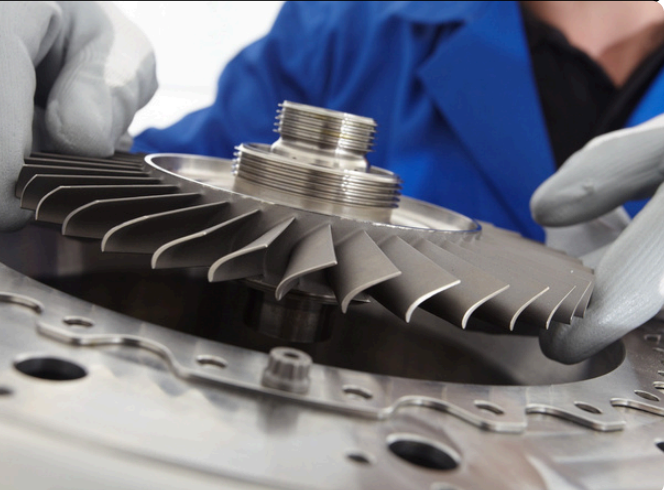
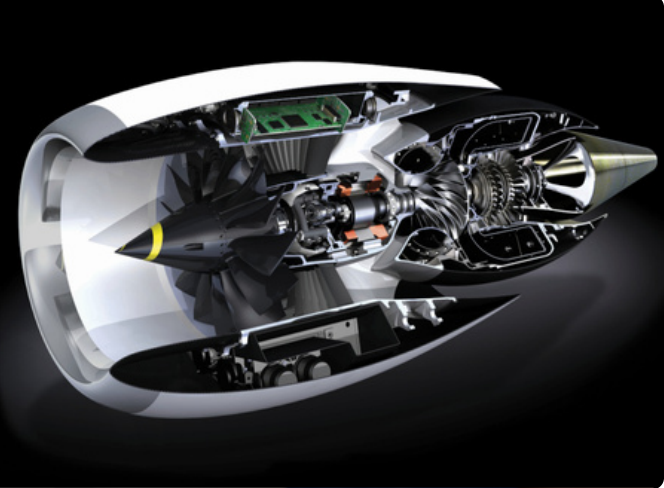
TURBOLAB's mission resides in providing support to the aeronautical industry by means of conducting comprehensive testing and characterizing a wide array of aeronautical propulsion systems. Drawing upon the wealth of knowledge and capabilities resident at Compositadour and Addimadour, Turbolab is actively cultivating a distinct realm of expertise centered around the advancement of engine components crafted through the utilization of composite materials and metallic 3D printing techniques. This expertise is being harnessed to pave the way for novel engine architectures.

RESEARCH TOPICS

- Design method for turbomachinery parts and sub-assemblies
- Optimization of manufacturing processes for the production of turbomachinery components
- Behavior under complex loads of metallic architectural materials obtained by additive manufacturing processes
- Development of an experimental validation process applied to turbomachinery

KEYWORDS

Turbomachinery / Hydrogen / Propulsion / Vectorization / Thrust measurement / Sensors / Innovation / Advanced materials



RESOURCES

Equipements

Turbofan DGEN 380 (250 daN thrust)
E-TurboProp OPUS 380H (250 kW shaft power, thermal and electrical)
Battery emulator 250 kW (530-840V DC)
50 kW chiller
Fuel/Hydrogen service (H2 regulation pumps, 200 bar storage)
Control room (control, camera surveillance)
Acquisition (Specific instrumentation, multi-purpose acquisition unit)
Propeller bench (250 kW motor + force/torque measurement)
Hitachi TM4000Plus SEM
Machine SYNTAX 300 - 3R Labo - 300kN
Adaptable premises (meeting room, training rooms)

SERVICES

Research & Development

TURBOLAB is open to all academic and industrial organizations for their research and development activities, through contract research (R&D services) and collaborative research projects.

Testing of complete propulsion systems :

- **Thrust Load Testing** - Conducting rigorous assessments of thrust loads to ensure optimal performance and safety.
- **Efficiency Mapping** - Precision measurement and analysis of efficiency points for precise engine optimization.
- **Systems Testing** - Comprehensive evaluation of engine systems, covering all critical components.

Tests campaign using existing engines available on the platform :

- Design and development of specific components
- Development of sub-assemblies (mechanical, hydraulic, electrical or electronic)
- Alternative fuels: biofuels, synthetic fuels, hydrogen
- Evaluation of new manufacturing processes and materials

Vibration characterization
Propeller characterization

Training

Turbolab offers several training courses for operators, technicians and engineers in innovative propulsion systems

Technology Transfert

Turbolab's teams support manufacturers (start-ups, SMEs, ETIs and major groups) in integrating the new solutions they have developed.

CONTACT



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R&D Industrial Partnerships

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