

COMPARE

Comparative evaluation of NDT techniques for high-quality bonded composite repairs

- **Project budget: €150k**
- **End user: GMI Aero SAS**
- **Other partner: National Technical University of Athens**

Adhesively bonded composite repairs exhibit significant advantages in terms of mechanical efficiency compared to those effected using mechanical fasteners. However they are at the same time extremely sensitive to process parameter variations. Small deviations against the repair specifications and subsequent flaws, could lead to disproportionately larger consequences to the final mechanical performance of the repair and to the integrity of the structure.

Existence of reliable and easy to apply NDT techniques is of capital significance to repair reliably and to flight safety. For this reason existing NDT principles need to be adapted to the specificities of bonded composite repairs. This project seeks to address this need by a comparative evaluation of three different NDT techniques: piezoelectric ultrasound, shearography and laser ultrasound.

The work will assess flaw detectability, functional reliability, repeatability of results, operational constraints, overall performance and applicability to the typical bonded composite repair cases of the aeronautical industry.

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This project will investigate current state of the arts of conventional ultrasound, laser shearography and laser ultrasound, adapting and optimising these techniques for the inspection of CFRP composite both before and after repair. The successful implementation of this project is expected to reduce maintenance, repair and inspection costs significantly through increase of repair reliability and reduction of time required for repair.

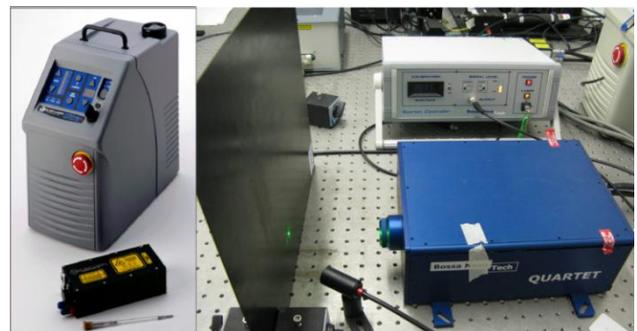
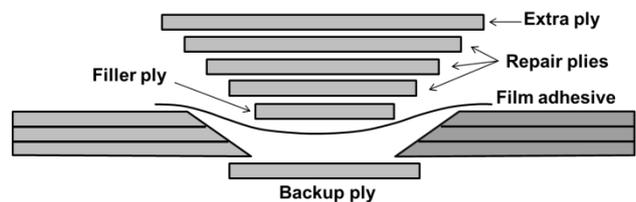
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Further information can be found at:

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