

QUICOM

Quantitative Inspection of Complex Composite Aeronautic Parts Using Advanced X-ray Techniques

Our Motivation

Recent years have seen a rapidly growing demand from aeronautic industry regarding function-oriented, highly integrated, energy-efficient and lightweight structures. In advanced composites a promising material was found, which integrates these characteristics allowing for continuously elevating the complexity of new components concerning shape and internal structure. The consequences of this increasing complexity are tremendously raising efforts in quality control, as conventional non-destructive testing methods are reaching their limits and become either extremely time-consuming or unusable for a full inspection.

Our Goals

QUICOM aims at taking the next big step in the development of aeronautic components by developing a new technology platform of highly detailed inspection methods in combination with advanced composite modeling and simulation. The project generates new concepts and methods based on cutting edge X-ray techniques, which aim to escalate conventional nondestructive techniques in aeronautics on the short run and to replace them on the long run. The QUICOM technology platform will allow a full characterization of all kinds of aeronautic specimens concerning material decomposition and geometric features within short time. The results are integrated into a feedback cycle, to boost composite development in the direction of saving weight without losing the demanded characteristics. In detail the following high level goals are targeted:

- » Escalate and replace commonly used NDT techniques (e.g. ultrasonic inspections, micro cuts) by using X-ray computed tomography in aeronautics
- » Develop and apply advanced X-ray computed tomography techniques for characterizing aeronautic composites and components
- » Provide highly detailed, qualitative and quantitative 3D characterizations of inner and outer structures
- » Advanced application specific simulation and modelling of composites materials and parts.

The Project

The QUICOM project is expected to be completed in 36 months and is divided into 3 distinct phases.

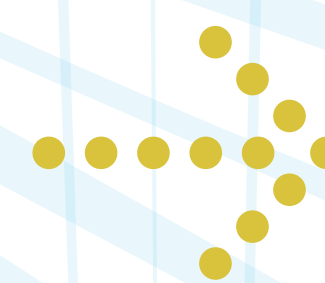
Phase 1

Definition of detailed specifications for the required techniques, methods, software and showcases



Phase 2

Development of methods and techniques for the targeted QUICOM technology platform



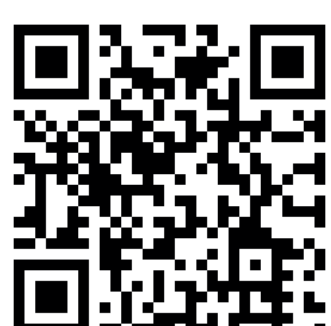
Phase 3

Demonstration and evaluation of the developed methods and techniques on the defined showcases

The Partners



For more information on the QUICOM project please visit www.QUICOM.eu or contact us via email c.heinzl@fh-wels.at



QUICOM Project Website
www.QUICOM.eu

Coordinated by



University of Applied Sciences

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