PROJECT

FLiPASED

FLIGHT PHASE ADAPTIVE AERO-SERVO-ELASTIC AIRCRAFT DESIGN METHODS

Funding: European (Horizon 2020)

Duration: Sep 2019 - Dec 2022

Status: Ongoing

Total project cost: €3,846,245

EU contribution: €3,846,245

CORDIS RCN : 223193

Objectives:

Flight Phase Adaptive Aero-Servo-Elastic Aircraft Design Methods (FliPASED) opens a completely new dimension for the integrated aircraft design. Coupling between aeroelasticity, gust response, flight control methods, instrumentation and certification aspects is not exploited in current aircraft design. A common set of models, coupled with joint requirements enable a multidisciplinary-optimized design for the entire aircraft, leading to more optimized overall performance.

The concept of exploiting coupling between disciplines will take advantage of tools developed by the partners in former projects. The main objectives of the proposal aim at tightly coupled multi-objective optimization of advanced, active controlled wing designs through the integration of a collaborative design tool chain. More than 10% fuel efficiency improvement, and 20% reduction in peak amplitude of the gust response, as well as a 50% reduction of number of distinct models used during the development and certification process are set as project goals. Through the integration of all discipline tools from aerodynamics, structural design, aeroelastic simulation and control design in one integrated tool chain an active, condition optimized wing design becomes feasible, enabling enhanced performance at lower weight and cost.

The project will raise the efficiency of a currently separately existing development toolchains, by advanced multidisciplinary and collaborative capabilities for whole aircraft along its life cycle. It will develop methods and tools for very accurate flexible-mode modelling and flexible aircraft control synthesis, in the context of reliable implementation of the avionics system, taking into consideration the fault detection and reconfiguration. The accuracy of developed tools and methods will be validated on a safe and affordable experimental platform, and results will be shared along with design requirements and standardized interfaces in an open source approach.

Parent Programmes:

H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Other programmes: MG-3-1-2018 Multidisciplinary and collaborative aircraft design tools and processes

Lead Organisation:

Magyar Tudomanyos Akademia Szamitastechnikai Es Automatizalasi Kutatointezet

Address:
Kende Utca 13-17
Budapest
1111
Hungary

Organisation Website:
http://www.sztaki.hu

EU Contribution: €1,066,875

Partner Organisations:

Technische Universitaet Muenchen

Address:
Arcisstrasse 21
80333 MUENCHEN
Germany

Organisation Website:
http://www.tu-muenchen.de

EU Contribution: €1,235,375

Office National D'etudes Et De Recherches Aerospatiales

Address:
CHEMIN DE LA HUNIERE
91120 PALAISEAU
France

Organisation Website:
http://www.onera.fr

EU Contribution: €602,500

Deutsches Zentrum Fr Luft Und Raumfahrt E.v

Address:
Linder Hoehe
51147 KOELN
Germany

Organisation Website:
http://www.dlr.de

EU Contribution: €941,495

Technologies:

Aircraft design and manufacturing
Aircraft design model

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Other specified

Geo-spatial type: Other