PROJECT

DRAGY

Drag Reduction in Turbulent Boundary Layer via Flow Control

Funding: European (Horizon 2020)

Duration: Apr 2016 - Jun 2019

Status: Complete

Total project cost: €1,827,686

EU contribution: €1,827,686

Call for proposal: H2020-MG-2015_SingleStage-A

CORDIS RCN : 199572

Objectives:

The proposed project “Drag Reduction via Turbulent Boundary Layer Flow Control” (DRAGY) will approach the problem of turbulent drag reduction through the investigation of active/passive flow-control techniques to manipulate the drag produced by the flow structures in turbulent boundary layers. In addition, the project aims to improve the understanding of the underlying physics behind the control techniques and its interaction with the boundary layer to maximize their efficiency.

Turbulent Boundary Layer Control (TBLC) for skin-friction drag reduction is a relatively new technology made possible through the advances in computational-simulation capabilities, which have improved our understanding of the flow structures of turbulence. Advances in micro-electronic technology have enabled the fabrication of actuation systems capable of manipulating these structures. The combination of simulation, understanding and micro-actuation technologies offer new opportunities to significantly decrease drag, and by doing so, increase fuel efficiency of future aircraft. The literature review that follows will show that the application of active control turbulent skin-friction drag reduction is considered of prime importance by industry, even though it is still at a very low Technology Readiness Level (TRL =1). Given the scale of the “Flightpath 2050” challenge, now is the appropriate time to investigate the potential of this technology and attempt to raise the TRL to 2 or possibly 3 in some particular branches of the subject. DRAGY proposes a European R&T collaborative effort specifically focused on active and passive control for turbulent skin-friction drag reduction.

The project will result in mutual benefits for industry and scientific European as well as Chinese communities, in a topic of growing concern, namely drag-reduction technologies.

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)

Lead Organisation:

Centre Internacional De Metodes Numerics En Enginyeria

Address:
C Gran Capitan, Edifici C1, Campus Nord Upc Sn
8034 Barcelona
Spain

Organisation Website:
http://www.cimne.com

EU Contribution: €220,000

Partner Organisations:

The University Of Sheffield

Address:
Firth Court Western Bank
Sheffield
S10 2TN
United Kingdom

Organisation Website:
http://www.sheffield.ac.uk

EU Contribution: €185,000

Imperial College Of Science Technology And Medicine

Address:
Exhibition Road, South Kensington
LONDON
SW7 2AZ
United Kingdom

Organisation Website:
http://www.imperial.ac.uk

EU Contribution: €219,996

Office National D' Etudes Et De Recherches Aérospatiales

Address:
29, avenue de la Division Leclerc
BP72 CHÂTILLON CEDEX
France

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

EU Contribution: €80,145

Deutsches Zentrum Fr Luft Und Raumfahrt E.v

Address:
Linder Hoehe
51147 KOELN
Germany

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

EU Contribution: €276,075

Airbus Espana, S.l. Sociedad Unipersonal

Address:
P John Lenon, s/n
28906 GETAFE
Spain

Organisation Website:
http://www.airbus.com

EU Contribution: €25,000

Dassault Aviation

Address:
9, Rond-Point des Champs-Elysées - Marcel Dassault
75008 PARIS
France

Organisation Website:
http://www.dassault-aviation.com

EU Contribution: €24,970

Politecnico Di Milano

Address:
Piazza Leonardo Da Vinci 32
20133 Milano
Italy

Organisation Website:
http://www.polimi.it

EU Contribution: €150,000

Airbus Defence And Space Ltd

Address:
Gunnels Wood Road
STEVENAGE
SG1 2AS
United Kingdom

Organisation Website:
http://www.astrium.eads.net

EU Contribution: €80,000

Centre National De La Recherche Scientifique

Address:
3 rue Michel-Ange
75794 PARIS
France

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

EU Contribution: €221,500

Universidad Politécnica De Madrid

Address:
Avda. Ramiro de Maeztu, 3
28040 MADRID
Spain

Organisation Website:
http://www.upm.es

EU Contribution: €265,000

Chalmers Tekniska Hoegskola Ab

Address:
-
41296 GOTHENBURG
Sweden

Organisation Website:
http://www.chalmers.se

EU Contribution: €80,000

Technologies:

Aircraft design and manufacturing
Turbulent Boundary Layer Control (TBLC) for skin-friction drag

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Environmental/Emissions aspects

Geo-spatial type: Other