Drag Reduction in Turbulent Boundary Layer via Flow Control

Fact Sheet

Objective

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.

**Field of science**

/humanities/languages and literature/literature - general

/engineering and technology/mechanical engineering/vehicle engineering/aerospace engineering/aircraft

**Programme(s)**

**Topic(s)**

**Call for proposal**

H2020-MG-2015_SingleStage-A

**Funding Scheme**

RIA - Research and Innovation action

**Coordinator**

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Research Organisations

EU contribution
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