Special Issue

Smart Wing Aircraft

Message from the Guest Editor

Smart Wings are seen as a key factor to improve aircraft performance, increase passenger comfort beyond the state-of-the-art. As today's transport aircraft have unquestionably reached a high level of quality, a combination of innovative techniques is required to obtain that ambitious goal. Various approaches for flow control promise a reduction of induced drag, e.g. by cruise-point dependent adaptation of the lift distribution, and of friction drag, e.g. by laminar flow. Passive load control methods like aeroelastic tailoring, and active load control techniques, in combination with new sensors like LIDAR systems or sensor networks, will help to reduce structural wing mass. New aircraft and wing design processes will capture the potential of the technologies for performance increase and load reduction, and will assess the impact on drag, aircraft mass and thus fuel burn reduction. Promising technologies will be tested in wind tunnel experiments, in UAV and full aircraft scale, making use of innovative sensing and data acquisition techniques.

Guest Editor

Prof. Dr. Wolf-Reiner Krüger
Institute of Aeroelasticity, German Aerospace Center (DLR), Loads Analysis and Design, Bunsenstr. 10, 37073 Göttingen, Germany

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Aerospace
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
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Editor-in-Chief

Prof. Dr. Konstantinos Kontis
School of Engineering, University of Glasgow, James Watt Building South, University Avenue, Glasgow G12 8QQ, Scotland, UK

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