DESIGNING CLEANING DEVICES FOR LAMINAR WINGS

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ABSTRACT.

Future aircraft will pay even greater efforts to provide as laminar as possible wing technologies, in order to ensure lower fuel consumption and optimal cruise conditions. Small asperities deposition on the wings during take-off and climb can induce transition and destroy partially laminarity. One of the causes of such deposition comes from insect striking. In the context of the FP7 CLEANSKY JTI Initiative, EPFL has lead a study on cleaning devices for such wings for two major European Aircraft Manufacturers, Dassault Aviation and Airbus. The project was run in parallel with a student semester project campaign, integrating teaching, research and design.

This paper will discuss the design parameters and strategies, backed up by simulation and multi-physics evaluations, and point–out the strength of including students' projects directly into such studies.