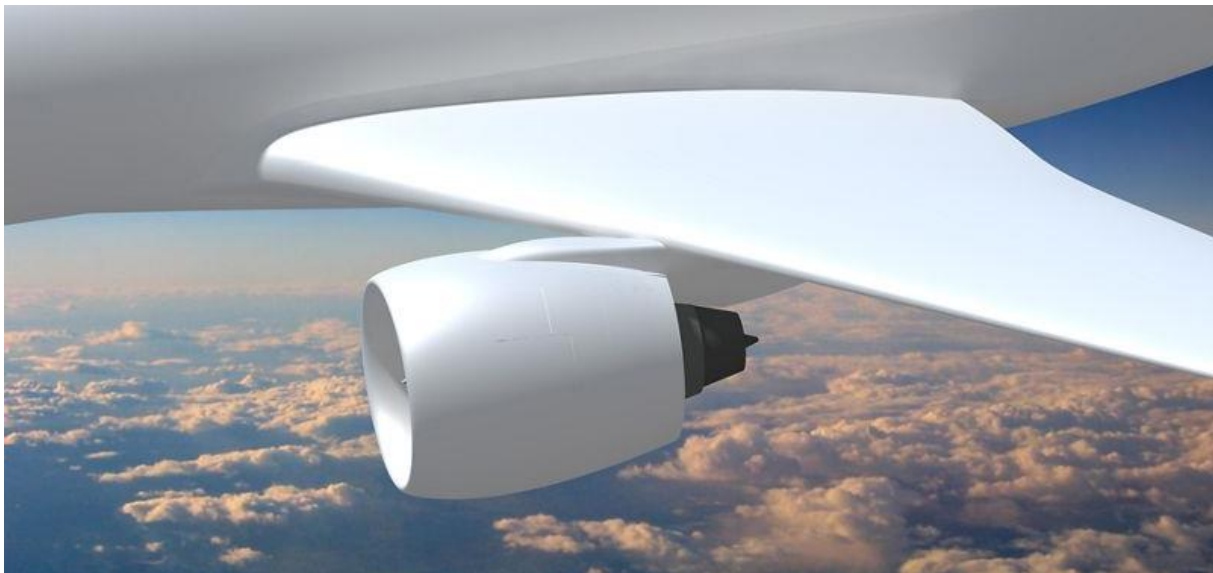


WORKSHOP

17/10/2023

Advancing Insect Contamination Mitigation for Laminar Wings: Innovations in Coating and Testing Technologies

At VKI Rhode St Genèse Belgium



Particularly concerned with reducing fuel consumption and CO₂ emissions, the aeronautic industry designs structures and materials to preserve laminar flow and reduce drag. Controlling laminar flow is a way of ensuring that the air flows around certain parts of the aircraft in parallel layers, and can reduce fuel consumption by 5 to 10%. At the leading edges of aircraft wings, insects hitting and sticking to the surface act as boundary layer disturbances that lead to a loss of laminarity. The accumulation of insect debris on the leading edge of laminar wings has been recognised as one of the most significant operational problems associated with laminar flow. Over the years, various approaches have been proposed, including the use of coatings to mitigate insect contamination and preserve laminar flow.

The objective of this workshop is to present an overview of recent innovation in coating and testing technologies. The workshop is organized in the frame of the EU funded STELLAR project (CLEANSKY). The workshop programme includes presentations on developments carried out as part of the STELLAR and related projects.

Detailed program

9h00 Welcome

9h20-9h40 General introduction – CHOPIN and STELLAR Projects (M. Poelman)

9h40-10h00 Clean Aviation Current and future Challenges – S. Shroff / V. Selmin (Clean Aviation)

10h00-12h Session : Coating development

10h00-10h30 : Marta Fenero Bisquez (Cidetec) “Omniphobic coatings: low adhesion surfaces for anticontamination”

10h30-10h50 : Mireille Poelman (Materia Nova) “Hybrid ceramic-like coating by sol gel for long term anti-adhesion properties”

***** Coffee break *****

11h10-11h30 : Loan Terrien, Anne-Pascale Romano (Materia Nova) “Functionalized self-healing polyurethane coating “

11h30-11h50 : Silke Gruenke (Airbus GMBH) “Experiences on cleanability and erosion resistance”

11h50-12h20 : Roundtable

***** Lunch *****

13h40-17h00 Session : Testing and monitoring

13h40-14h00 : Baptiste Martinet, Corentin Decroo, Ruddy Wattiez (UMONS) “Biochemical modification of hemolymph during coagulation process according to different abiotic factor”

14h00-14h20 : Claire Perfetti, Valérie Tommen, Carlo Saverio Iorio (ULB) “Biomimetic Analogs for Insect Contamination Studies : a route towards standardisation »

14h20-15h00 : Sara Gonzalez Ruiz, Gertjan Glabeke (VKI) “Insect contamination testing under simulated conditions: Climatic chamber and wind tunnel tests”

Coffee break

15h20-15h40 : Stian Solbø (NORCE) “Chasing insects with drones. Results and lessons learned

15h40-16h00 : Donatienne Ghysseleinckx (SONACA) “Validation of STELLAR coatings under real conditions : short and long flight tests”

16h00-16h30 : Roundtable - Conclusions

***** Short break *****

16h40-18h : Visit of VKI