

CLEAN SKY 2 - GREEN REGIONAL AIRCRAFT (GRA) - ADVANCED WING FOR REGIONAL AIRCRAFT

AIR GREEN 2 Consortium: Italian Aerospace Research Centre (CIRA), Hellenic Aerospace Industry (HAI), Office National d'Etudes et de Recherches aérospatiales (ONERA), SICAMB, Siemens Industry Software NV, FOXBIT, AEROSOFT, ITALSYSTEM, NOVOTECH, TECNAM, Umbra cuscinetti SpA, Polytechnic of Milan, Polytechnic of Turin, University of Naples "Federico II", University of Pisa

IMAST members involved: CNR (Institute for Polymers, Composites and Biomaterials IPCB), ENEA.

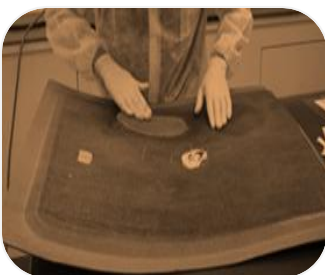
OBJECTIVES

The Clean Sky 2 program is an European project funded by H2020 with the aim to develop innovative technologies for the production of composite wing for a next-generation of aircraft. The features of this wing will be: innovative structure (thanks to improved design and life cycle analysis), high level of adaptability (allowing control and load reduction strategies and better aerodynamic performance at different flight regimes) and innovative aerodynamic design (for a natural laminar flow and for the conservation and reduction of aerodynamic drag). In addition, other complementary activities of the CS2 program will study the development of EMA technologies (electromagnetic for stealth applications), integrated tools for the prediction of the ice accumulation and advanced design of the components.



IMAST ACTIVITIES

Within the CS2 project, IMAST performs activities on two specific work packages "Innovative Wing Structure" and "Wing NLF (Natural Laminar Flow)". In particular, through a numerical-experimental approach, IMAST will develop methodologies for the **thermal evolution analysis**, the **material degradation** and the **mechanical performance** of composite structures in extreme temperature conditions.



In addition, IMAST will develop an **experimentally repair techniques for composite structures**.

Finally, a **functional coating** will be developed in order to **improve the wing aerodynamics**, by increasing the hydrophobicity and surface protection from corrosive phenomena.

