Charlotte Dupressoire, Airbus Operations SAS

Title: "Wear protection for aircraft Wing to Pylon engine attachment"

Authors: C. Dupressoire, C. Poupon

Abstract:
In an aeronautic industry driven by performance, durability is one of the main objectives. It is consequently of major importance to understand the in-service issues to improve parts' lifetime. Many of these challenges are linked to wear and fretting as the one experienced in early 2000's on the wing to pylon front attachment of A380 aircraft. This interface is key to ensure loads transmission (engine weight) and have high requirements for maintenance.

A wear failure analysis was then conducted to determine the mechanism involved. It showed that a fretting wear phenomenon was responsible of damages found at the interface. An elementary test campaign was performed to investigate alternative combinations of material and coating. The most promising solution was then validated on full scale tests leading to its qualification.

During the maintenance inspection after 12 years in service, the qualified meets the expectations in terms of function and maintenance requirements. This good practice was even applied to other new programs.

Biography:
PhD in Materials Science on High temperature behaviour of titanium-based alloys
2 post-doctorates on Additive Manufacturing of TA6V alloy
Now, working on tribological (Wear & Fretting) topics for 2 years