**Problématique**

With the advances of new technologies and new materials; aerospace, military and commercial aircraft industries are looking to decrease the fuel consumption by reducing weight into their structures and components. Hybrid or stacks of materials are more often used in air-frames because of the outstanding mechanical properties such as: high strength/weight ratio, excellent corrosion and fatigue resistance that cannot be provided with conventional materials. Machining of carbon fiber-reinforced plastic (CFRP)/Titanium or Al can be a real challenge to obtain the specified geometries and dimensional tolerances in the manufacturing line due to the difference in machinability of each material making them a difficult task. Drilling, cutting and milling are the more conventional methods of machining process in the industry inducing delamination and thermal damage in the stack of material.

**L’objectif de la recherche**

The proposed project will investigate current practices in milling of graphite/epoxy and stacks of material (CFRP/Ti) in order to predict cutting forces, temperatures during machining and ensure the proper quality of parts (without delaminating and thermal damage of epoxy).