

# Multi-material Assembly

LIMECO Project



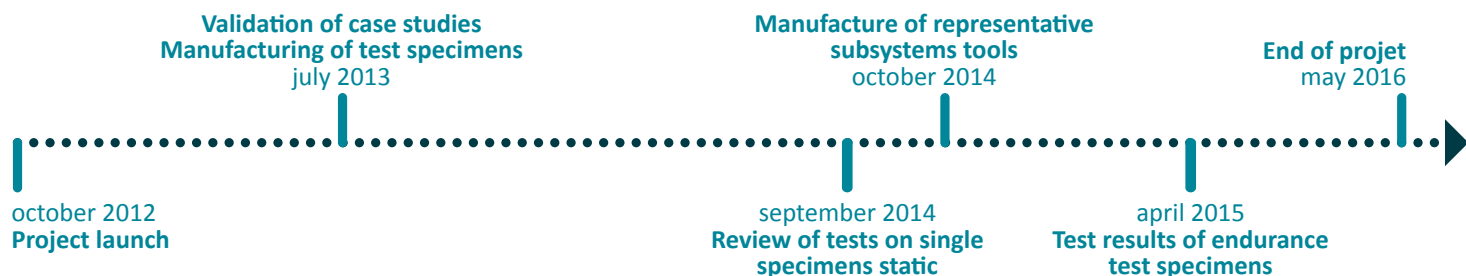
The project is designed to develop, test and validate structural multi-material structural assemblies. Considered materials are steel and thermoplastic composites (polypropylene and polyamide) implemented by injection and by thermo-embossing. Overmoulding, gluing and mechanical assemblies are developed.

## Technical and economic impacts

- ▶ Multi-material assembly Technologies
- ▶ Applications of large series (1000 per day)
- ▶ Design and simulation of assemblies

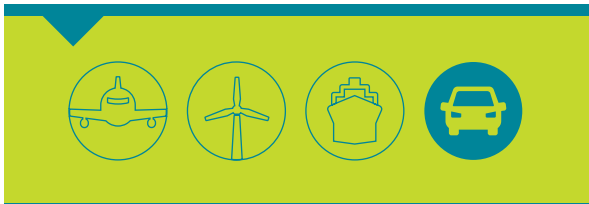
## Keywords

Multi-material Assembly  
Thermoplastic composites  
Overmolding // Collage



## INDUSTRIAL CONTEXT

The possible applications in the automobile sector for multi-material connections are very important. Respite of a key contributor to achieve CO2 emission targets requested by all manufactures in 2020. To lighten vehicles with a value greater than 200 kg, a multi-material approach is essential and besides problems related to the production of composite parts, Assembly problems are crucial points with many possible applications in the automobile.



## INNOVATIVE FEATURES

- ▶ Design highly stressed structural links between a steel part and a thermoplastic part.
- ▶ Experimentally validate the performance and manufacturing processes of bindings for very large series (with cycle times of 10 s to 1 min).
- ▶ Simulate links for their static and crash holding.

## Partners

- ▶ IRT JULES VERNE
- ▶ CETIM
- ▶ COMPOSE TOOLS
- ▶ FAURECIA
- ▶ ECOLE CENTRALE NANTES (GEM)

## Budget

▶ 1 475 k€

## INDUSTRIAL APPLICATIONS

Possible applications are numerous in the automotive sector such as the vehicle interior (seat frames, crosses of dashboard...), the body and the white instrument (bumpers, beams, sashes, flooring...).

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