

MSc thesis assignment:

Structural impact analysis of a lightweight foldable tail structure

The high fuel prices and the focus on CO2 emissions reintroduce the interest in aerodynamic truck design. A very effective way to reduce the aerodynamic drag is to apply a, so called, boat tail at the trailer rear-end, see figure below. Numerical simulations, wind tunnel experiments and full-scale road tests were successfully conducted: fuel savings above 1l/100km were measured. A lightweight innovative foldable prototype is being designed. One of the issues in terms of European approval is safety and impact performance of the structure.

The current MSc thesis assignment involves a profound impact analysis of the boat tail structure. With the aid of analytical equations and Finite Element Methods (FEM) the panels and the supporting structures are subjected to impact forces to identify issues which will lead to a redesign regarding safety.



Assignment details

- Structural design of an aerodynamic rear-end solution
- Impact analysis of structure
- Analytical design + verification with advanced engineering tools + experimental validation
- Start of assignment: as soon as possible

Contact:

dr.ir. Gandert Van Raemdonck, gandert.vanraemdonck@ephicas.eu - 0157112737 – Ephicas b.v.

Ephicas, www.ephicas.eu, develops aerodynamic solutions for trailers