



# Master Thesis at German Aerospace Center (DLR) in Braunschweig, Germany

## Vacuum pack for stiffness variable aircraft spoiler/flap hinges

Would you like to be part of this novel research?

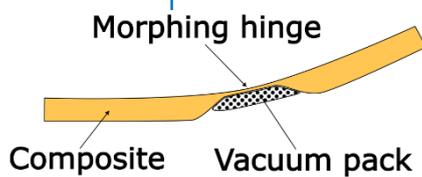
At the Institute of Lightweight Systems in the department Adaptronics of the German Aerospace Center (DLR), we are designing and testing morphing aircraft structures for the future of aviation. The goal of morphing in general is to adapt the shape of a component such as an aircraft spoiler to meet aerodynamic targets. At the same time, the shape variable structure has to withstand large operating loads.

The objective of this work is to use vacuum packs for switching the stiffness of a morphing hinge/joint on and off. Thus, you will design a shape variable structure as flexure hinge and equip it with a vacuum pack. The vacuum pack must immobilize the hinge, thereby reducing the energy required to maintain it in a desired position. You get the chance to perform experiments at DLR location in Braunschweig and gain knowledge with the finite element simulation tool ANSYS Workbench, which is widely used in industry.

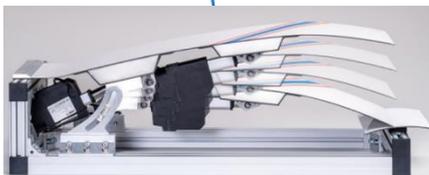
The thesis must be written in English. You will work at DLR in Braunschweig (Germany). A laptop will be provided as well as the necessary lab equipment. Your direct supervisor will be at DLR location in Braunschweig but you will also get council from your professor at the University of Trento.

Are you interested?

Then contact **Emiliano Rustighi** at your university. He will answer your initial questions and put you in touch with us in Braunschweig.



Concept of a morphing hinge with a flexible composite structure and a vacuum pack for stiffness adaption.



Demonstrator of a morphing aircraft spoiler with a flexible hinge ([Kintscher et al., 2021](#)).

### Contact at University of Trento

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