PRESS RELEASE

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Hybrid Electric Regional Wing Integration Novel Green Technologies

HERWINGT

POLIMI Researchers Publish their latest breakthrough in the development of morphing ailerons

POLIMI researchers, including Vittorio Cavalieri and Alessandro De Gaspari, published their latest open-access article in the Aerospace Science and Technology journal entitled "***Design optimization and virtual testing of a morphing aileron with high actuation bandwidth***".

This work presents a breakthrough in the development of morphing ailerons—innovative control surfaces capable of adapting their shape dynamically to reduce aerodynamic drag, minimize actuation forces, and enhance efficiency in hybrid-electric regional aircraft. Unlike conventional hinged ailerons, our morphing design leverages compliant structures and advanced optimization methods to deliver:

- **High-bandwidth actuation** enabling rapid dynamic response
- **Reduced energy demand** for smaller, lighter actuators
- **Improved aerodynamic efficiency** with seamless, gap-free surfaces
- **Validated performance** through comprehensive virtual static and dynamic testing

This research contributes to the broader vision of sustainable aviation, offering a pathway to lighter, more efficient aircraft systems that support certification readiness and future integration into next-generation wings.

🔗 Read the full article **here**.

About HERWINGT

The Hybrid Electric Regional Wing Integration Novel Green Technologies (HERWINGT) project is one of the pioneers in the decarbonization of aviation. It aims to design a novel wing ideal for the future hybrid electric aircraft of the regional segment and to develop architectures, structures, and technologies that enable higher integration of electrical systems.

Learn more at herwingt-project.eu

CLEAN AVIATION

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