



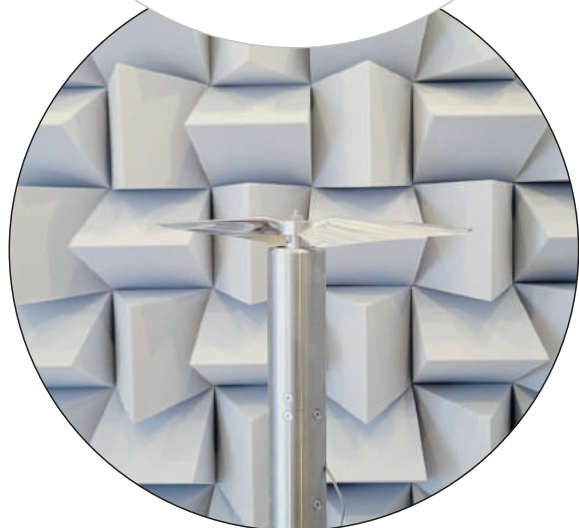
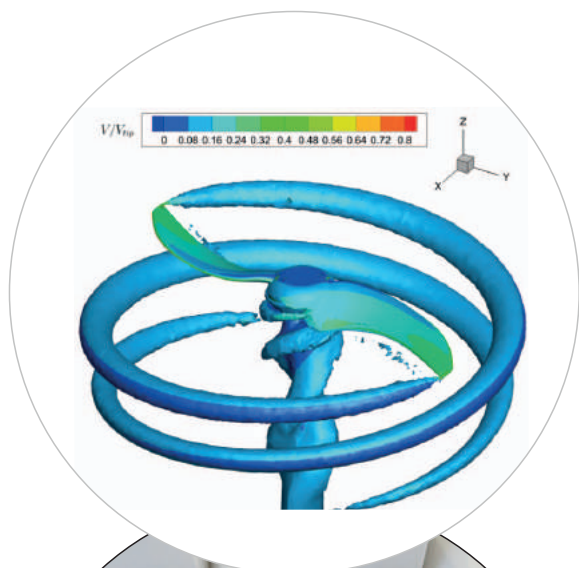
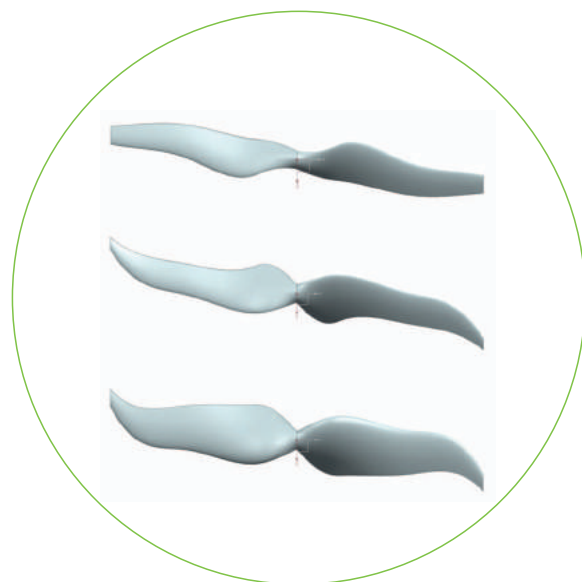
Łukasiewicz
Institute
of Aviation



LOW-NOISE PROPELLER DESIGN

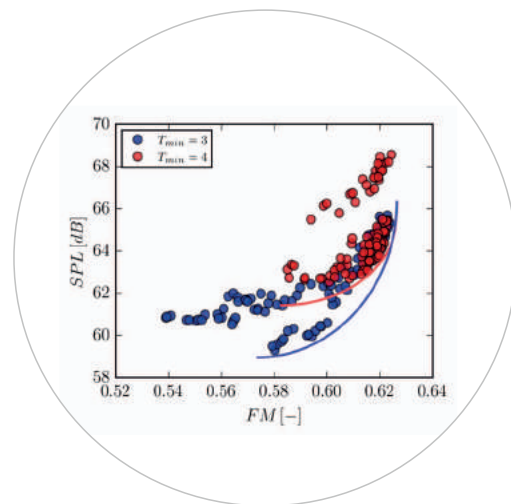
CHARACTERISTICS

Łukasiewicz - Institute of Aviation offers state-of-the-art methods supporting the design and optimization process of low-noise and high-performing propellers, including small-scale UAV propellers.



KEY FEATURES

- Design process based on state-of-the-art methods, including global parametric design methods, machine learning and high-performance computing.
- Multi-objective and multi-point optimization, with the design tailored for specific needs – target thrust, power consumption or noise emissions.
- High-fidelity CFD-based process allows accurate analysis of novel design features such as winglets.
- Extensive data-driven analysis and exploration of aerodynamic and acoustic trade-offs. Design sensitivity study.
- Noise reduction of both tonal and broadband components.
- Experimental verification of aerodynamic and acoustic performance in an anechoic chamber.



Capabilities demonstration:

- multi-objective surrogate-based optimization of UAV propellers in hover.



The Łukasiewicz Research Network - Institute of Aviation offers a wide range of specialized research, engineering services and products. We provide comprehensive solutions, ranging from dedicated analyzes, simulations, engineering design, through the selection, testing and certification of materials and structures, to rapid prototyping and additive manufacturing.

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