Fraunhofer EMI

Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut, EMI

BattCopter

Fast Facts

Duration: 07/2024 – 01/2028

Funding program: Luftfahrtforschung und -technologie LuFo VI-3

Funding institution: Federal Ministry for Economic Affairs and Climate Action based on a resolution of the German Bundestag.

Consortium:

- Airbus Helicopters Deutschland GmbH, Donauwörth
- Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut, Freiburg

Motivation

The integration of a hybrid-electric propulsion system into the Airbus Helicopters research platform PioneerLab forms the basis for future electric or hybrid-electric helicopter concepts, which enable a reduction in fuel consumption and greenhouse gas emissions. The integration of high-performance battery systems into a flying platform must be carried out under maximum safety standards to obtain flight approval.

Airbus PioneerLab, the new twin-engine flying laboratory. © Airbus

Objectives and Approach

The work to be carried out at the Fraunhofer EMI as part of the sub-project BattCopter within the joint project HYDRO addresses fundamental investigations on the crash behaviour of high-voltage battery systems and their behaviour under thermal runaway conditions. Therefore, highly-instrumented tests will fuel numerical methods enabling the numerical prediction of battery systems under abnormal conditions.

Innovation and Perspectives

The BattCopter project enables the understanding of battery systems in the aviation context under abnormal conditions. Furthermore, efficient simulations models will be built up to be used for design optimization of the battery system and its hazard mitigation means. Thus, the project contributes to the safe integration of battery systems into flying platforms.

Supported by:

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in cooperation with

AIRBUS HELICOPTERS

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