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# Clean Sky 2 Project LiBAT: Light Battery Pack for High Power Applications in Aviation – Simulation Methods in Early Stage Design

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**Abstract :** Electrical and hybrid aerospace technologies pose very challenging demands on the battery pack – especially with respect to weight and power. In the Clean Sky 2 research project LiBAT (funded by the EU), the consortium is currently building an ambitious prototype with state-of-the art cells that shows the potential of an intelligent pack design with a high level of integration, especially with respect to thermal management and power electronics. For the latter, innovative multi-level-inverter technology is used to realize the required power converting functions with reduced equipment. In this talk the key approaches and methods of the LiBat project will be presented and central results shown. Special focus will be set on the simulative methods used to support the early design and development stages from an overall system perspective. The applied methods can efficiently handle multiple domains and deal with different time and length scales, thus allowing the analysis and optimization of overall- or sub-system behavior. It will be shown how these simulations provide valuable information and insights for the efficient evaluation of concepts. As a result, the construction and iteration of hardware prototypes has been reduced and development cycles shortened.

**Keywords :** electric aircraft, battery, Li-ion, multi-level-inverter, Novec
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