

## **AP2-3**

### **Electromagnetic Analysis of Fully Superconducting Motor for Electric Aircraft**

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In order to reduce carbon emissions, there is considerable interest in all-electric aircraft for transportation. Fully superconductor motors will be required to meet the high specific weight requirements, which are  $> 13$  kW/kg for the NASA N3-X plane. This paper summarizes the results of electromagnetic analysis generated using the FEMM magnetics code, along with the Lua scripting language, to determine the optimum motor configuration. For AC loss considerations, the analysis assumes Bi-2212 stator windings and both iron-tooth and air-core designs are considered.

Keywords: Superconductor, Motor, Optimization, AC Loss