

Transverse Flux Permanent Magnet Machine with Unified Drive Topology for Aviation Applications

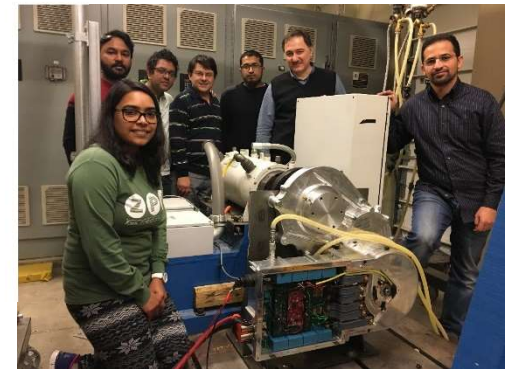
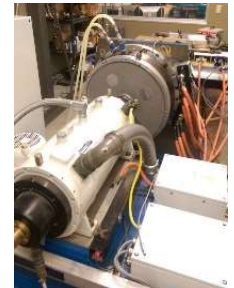
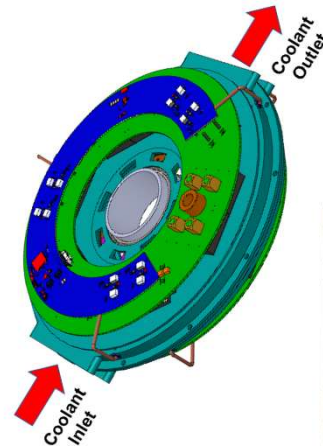


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Laboratory

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- A novel Transverse Flux Permanent Magnet (TF-PM) Motor for Aviation Applications (>250 kW)
- Advanced cooling methods for the stator to allow higher current density
- Interleaved wide bandgap SiC motor drive system
- Shared cooling system for the motor and the integrated drive system
- Cold air intake from the atmosphere is used in the heat exchanger of the TMS
- 3-D printed Composite materials for rotor, stator and mechanical assembly

Power density for the complete powertrain (including machine, inverter and thermal management system)	12.02 kW/kg
Takeoff and climb average efficiency for the complete powertrain	93%
Cruise average efficiency for the complete powertrain	94.71%
Power density of the motor drive system including TMS	29.42 kW/kg
Power density of the electric motor system including TMS	20.27 kW/kg
System Capacity	250 kW

Looking for Commercialization partners, Funding

Airspace Management <input type="checkbox"/>	Command & Control <input type="checkbox"/>	Comms <input type="checkbox"/>	Power & Energy Storage <input type="checkbox"/>	Propulsion <input type="checkbox"/>	Sensors & Awareness <input type="checkbox"/>	Other <input type="checkbox"/>
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