

Special Issue

Electric Machines for Electrified Aircraft Propulsion

Message from the Guest Editors

Aviation has a meaningful and accelerating impact on our climate and air quality. Aviation's share of the total, human-caused CO₂ emissions has reached 2.5% and is expected to continue increasing unless bold actions are taken. Both changes in the energy source and reductions in the energy used by an aircraft are required to reach international climate goals. Electrified aircraft propulsion (EAP) enables moderate to significant energy reductions by greatly expanding the aircraft design space. However, EAP's success depends on advancing the state of the art of electric machines in terms of efficiency, specific power, reliability/maintainability, and power density. In this pursuit, an emphasis must be placed on electric machines with power ratings of about 1 MW to 10+ MW, because such power is required for the propulsion systems of large transport aircraft (about 150+ passengers) which cause the large majority of the aviation sector's impact on the climate.

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