

Electrical motors technology

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Short bio

Florent Nierlich received the Engineering Degree in Electrical Engineering from Ecole Nationale Supérieure d'Electricité et de Mécanique, Nancy, France, in 1997.

After graduation, he joined Lucas Aerospace as electrical engineer to work on primary flight control EHA for Airbus Aircraft. He joined Safran Landing Systems in 2002 (formerly Messier-Bugatti-Dowty) as an R&D engineer. Since then, he contributed to the electrification initiative of Safran Group. He developed a wide expertise in power electronics, control, electric machines and drives for more electric aircraft.

Mr. Nierlich holds 21 international patents on electrification of air vehicles including electromechanical brake actuator for aircraft landing system, onboard DC power distribution system, emergency power network for landing-gear hook units, aircraft wheels braking/driving electric system, green taxiing and a system for distributed control of aircraft actuators.

His work has been employed in platforms like A380 flight control actuators, B787 electrical braking and A350 electrical emergency landing gear uplocks actuation.

In 2015, Mr. Nierlich moved to Safran Electrical & Power to lead research and technology road map, mainly focused on new electrical propulsion system.

Mr. Nierlich is currently Engineering director of Safran Electrical & Power, covering electrical generation, distribution systems and motor drive systems.

Abstract

Electrical motor technologies for propulsion system will be detailed. The key design drivers and technologies that drive weight, efficiency, robustness and safety of the propulsion electrical motor will be addressed. In particular, integration of power converter inside the motor and global thermal management will be highlighted.

Electrical protections that will allow a safe operation of the whole electrical chain from the power source up to the motors will also be discussed.