

Towards Net-Zero Aviation: Technologies and Challenges for Aircraft Electrification



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Electrification of aircraft is considered as the most promising solution to reduce environmental impact of aviation sector in order to achieve ambitious net zero targets. This trend means reconsideration of all onboard systems to employ electrically driven technologies. However, this change tremendously increases both the total electrical power budget required onboard and the complexity of aircraft electric power systems (EPS) that generate, store, manage, and distribute the power. Currently, significant changes are observed during the transition from conventional to more-electric aircraft (MEA) in which only some systems transferred to electrical energy sourcing, and towards all-electric aircraft (AEA) which also has an electrified propulsion system. This workshop will discuss the state-of-the-art of onboard EPS technologies, their key challenges and trends, including architectures, power sources and voltage levels, EPS control and management, power quality, protections. Particular attention will be paid to the technologies required for main EPS components, including energy sources, power electronics, electric machines, circuit breakers and others, and to the review of the challenges and potential solutions towards meeting EPS requirements for future electrified flying vehicles.

Introduce: Prof. Alessandro Mandolini – Direttore Dipartimento Ingegneria

Modera: Prof. Alberto Cavallo – Vicedirettore Dipartimento Ingegneria

Intervengono:

- Prof. Serhiy Bozhko: Direttore Institute Aerospace Technology Univ. Nottingham
- Dr. Hitendra Hirani: EU project manager Univ. Nottingham
- Dr. Beniamino Guida: Direttore tecnico Univ. Nottingham Italy
- Dr. Pierfrancesco Valentini: Direttore operativo Univ. Nottingham Italy