



Politecnico
di Torino



DIMEAS SEMINAR – SERIES AEROSEMINARS

NOISE AND VIBRATION OF ELECTRIC AIRCRAFTS

SPEAKER



Julio A. Cordioli

Associate Professor
Universidade Federal
de Santa Catarina



**Friday 21 November
at 3.00 pm.**



**Sala Ferrari, II floor,
DIMEAS – Politecnico di Torino**

PROGRAM

Abstract

In recent years, the aeronautical industry has seen a rise in aircraft projects utilizing electric propulsion, which can be grouped into three categories. The first includes conventional aircraft adapted with electric motors and propellers to reduce CO₂ emissions. The second involves electric aircraft designed for urban mobility—commonly known as eVTOLs (Electric Vertical Take-off and Landing) or air taxis—intended to transport people within metropolitan areas. The third focuses on logistics, using small electric aircraft or drones to deliver goods from distribution centers to customers, aiming to reduce urban traffic. A common feature of drones and eVTOLs is their operation within urban areas, where noise becomes a major concern. This lecture addresses key aspects of electric aircraft noise, both internal and external, and the potential impact of these new vehicles on urban soundscapes and passenger comfort. It first reviews the primary sources of noise and vibration, along with mitigation strategies applicable to these aircrafts. The presentation also highlights ongoing research aimed at reducing noise and vibration, and the numerical and experimental tools used in these studies. Finally, it explores the challenges of ensuring that new aircraft meet safety and comfort standards while minimizing their impact on users and public health.

BIO

Prof. Julio A. Cordioli graduated in Mechanical Engineering from Federal University of Santa Catarina (UFSC), Brazil, in 2000 and received his PhD in 2006 also from UFSC, with part of his PhD research developed at the University of Cambridge, UK. He has previously worked for EMBRAER (Brazil) on the design of noise control treatments for aircrafts, and for the ESI Group (USA), as an acoustic scientist on the development of vibroacoustic numerical methods. Since 2011, he has been an Associate Professor at the Mechanical Engineering Department, UFSC. His main research interests include: numerical methods in vibro-acoustics, aircrafts interior and exterior noise, aeroacoustics and vibration monitoring