COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

DISTINGUISHED GUEST SPEAKER

UNIVERSITY OF CENTRAL FLORIDA | ORLANDO

DATE
Friday, March 30, 2018

TIME
3:30 pm — 4:45 pm

LOCATION
Harris Engineering Center, Room 101
UNIVERSITY OF CENTRAL FLORIDA
Main Campus
4328 Scorpius Street, Orlando
407-823-2156

Power Generation and Distribution Architectures for More Electric and Hybrid Electric Aircraft Systems

Presented by Kaushik Rajashekara

In the aerospace industry, in order to lower the fuel consumption, reduce emissions, reduce maintenance, and possibly lower costs, more electric and hybrid electric architectures are the emerging trends. The intent is to move as many aircraft loads as possible to electrical power, electric starting of the engine, and conversion of all the pneumatic and hydraulic units on the accessory gearbox to an electric system. This presentation examines the electric architectures presently being used in a few of the aircraft systems and proposes new architectures based on AC and DC power distribution systems. Power generation strategies using permanent and induction machines are examined. Induction generator based electrical power generation and management system architectures for both the main engine generation system and auxiliary power unit system are introduced with a brief explanation of their operating principles and control methods.

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Kaushik Rajashekara, Ph.D., is a Distinguished Professor of Engineering at the University of Houston, Texas. Prior to this, he worked at UT Dallas as a Distinguished Professor of Engineering, Chief Technologist at Rolls-Royce Corporation, and Chief Scientist at Delphi/General Motors. He has published more than 160 papers in international journals and conferences and has 44 patents. He has given over 150 invited presentations at international conferences and universities. He was elected as Member of the U.S. National Academy of Engineering for contributions to electric power conversion systems in transportation. He was also elected as Fellow of the National Academy of Inventors. He is the recipient of the IEEE Richard Harold Kaufmann award, IEEE Industry Applications Society Outstanding Achievement Award, and IEEE IAS Gerald Kliman award for contributions to electric power conversion systems in transportation. He is a Fellow of IEEE and a Fellow of SAE International.