New Roadmap and Challenges in the New Aviation Era

Dr. Hao Huang
GE Aviation—Electrical Power

Abstract:
Aerospace is moving into a very special and bright era. This presentation describes this era from four perspectives: bright era – electrification perspective: proactive preparation of a new roadmap based on the combination of HEP/MEA once the Brayton cycle limit is reached; bright era – additive manufacturing perspective: change of the industry to manufacture flight devices for almost all aspects; bright era – WBG perspective: development of WBG devices, such as SiC/GaN, as a key enabler for the electrification; and, bright era – digital perspective: application of advanced control/computer/communications technologies, including artificial intelligence, machine learning, autonomous mobility and internet of things.

Bio:
Dr. Hao Huang is the Technology Chief of GE Aviation—Electrical Power. In this position, he is responsible for the provision of the technical directions, innovation strategies, and multi-generation product roadmaps for the GE aircraft electrical power division. He has contributed leadership and technical innovations in the development inventions of aircraft electrical power technologies. Dr. Huang is an IEEE fellow and SAE fellow. He received his Ph.D. Degree in Electrical Engineering from the University of Colorado at Boulder, Boulder, Colorado, USA in 1987. During his 30 years of experience in Aircraft Electrical Power Systems, he has made numerous contributions to power generation, engine starting, power electronics and controls and electric vehicle drives. He has 63 US patents and multiple publications in the technical literature. Dr. Hao Huang is the winner of 2019 IEEE Transportation Technologies Award.