

"What does the future bring?"

A look at Technologies for Commercial Aircraft in the years 2035 to 2050

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Thursday, January 23, 2014 -- 3:30 -- Guggenheim (G442)

Abstract:

Demographics and economics in the next 20 years are being examined. They reflect a significant GDP growth and with this a strong demand for commercial aircraft not only in the US and Europe but across Asia and the Middle East. The demand will focus on more fuel efficient and more environmentally friendly vehicles. Significant progress is being made with the new regionals, narrow-body, and wide-body aircraft between now and the year 2020. Looking beyond, the world will examine new airplane architectures, new changes in propulsion systems, and higher thermal and propulsion efficiencies. Distributed propulsion options will come into play. With them, higher operating pressure gas generators will be developed and great attention will have to be given to highly integrated propulsion/airplane systems. Energy transfer requirements will lead to bigger gear systems as well as new hybrid systems. The new machines are forecasted to offer improvements in fuel efficiencies of over 40%. A terrific achievement. There are many technical challenges to make all these things happen. The aerospace engineers and scientists of today and tomorrow face unlimited opportunities to make a difference for what looks like a very exciting future.

Bio:

Dr. Benzakein is currently Director of the Propulsion and Power Center at The Ohio State University (OSU). He assumed this position in July 2010 after completing a five year tenure as the Chair of the Aerospace Engineering Department at OSU. He assumed this position in early 2005 after retiring from General Electric Aircraft Engines where he was responsible for the Research and Technology Development and New Product Creation of all commercial and military engines over the last 10 years. At General Electric, he led the research effort in Advanced Engine Systems, Computational Aerodynamics, Aeroacoustics, Aeromechanics, and Combustion as well as the development and certification of CFM56 engines for the Boeing 737 airplanes, the A320, A321, A340 and KC 135 airplane. He was also in charge of the development and certification of the GE 90 for the Boeing 777 and the CF34-10 for the Embraer 170/190 airplanes. He was responsible for building one of the strongest engineering organizations in the nation. Dr. Benzakein is currently responsible for a University Center dedicated to the research and development of new technologies focused on advanced propulsion and energy systems. He is a member of the National Academy of Engineering, a fellow at the American Institute of Aeronautics and Astronautics, a fellow of the Royal Aeronautical Society and received the Gold Medal of Honor from the Royal Aeronautical Society in 2001. He is the recipient of the 2007 AIAA Reed Aeronautics Award and has served on many National Academy, Industry, and Government advising panels over the last ten years. Additionally he received an honorary Doctorate from the University of Poitiers, France 2006 and has been elected to the Air and Space Academy, France 2012.

