Gebhardt Distinguished Lecture Series presents:

Challenges and Opportunities for Future Aerospace Propulsion Systems

Paul Adams

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Abstract:
Economic demand and concern for the environment has stimulated innovations in the gas turbine engine industry. Aircraft performance improvements depend largely on the engines. Historically, engine fuel burn has improved at rate of about 1% per year. However, with the cost of petroleum based fuels rising and no end in sight, the engine manufacturers must innovate to realize step change improvements to fuel burn, noise, and emissions. Pratt & Whitney's innovative high bypass ratio Geared Turbofan™ engine architecture provides double-digit percentage improvements in fuel efficiency and reductions in noise and emissions.

To fully leverage the high bypass Geared Turbofan™ engine architecture in the future, we must consider advances in aircraft propulsion system integration to enable larger fan diameters and higher overall pressure ratio cycles for improved cycle efficiency. Innovations in aerodynamic systems, material advancement, and manufacturing methods are important. However, the challenge becomes the speed to develop and integrate new technologies into the product as well as practicality and cost effectiveness of the technologies.

An overview of the recent advances in propulsion system design will be presented along with a review of how engine integration, materials advancement, and manufacturing methods are playing a critical role in the development, realization and deployment of new systems with unprecedented performance and durability.

Bio:
Paul Adams is Chief Operating Officer for Pratt & Whitney, a world leader in the design, manufacture and service of aircraft engines and industrial gas turbines and a unit of United Technologies Corporation (NYSE:UTX). He leads a unified operations strategy across all Pratt & Whitney business units and ensures the readiness of the company's global supply chain. He is responsible for P&W Commercial Engines, P&W Military Engines, P&W Canada, P&W Power Systems, P&W AeroPower, Module Centers & Operations, Engineering, Group Quality/EH&S and Information Technology.

Adams joined Pratt & Whitney from Williams International in 1999 and was appointed to his current position in January 2013. He has more than 30 years of leadership experience in program management and engineering with extensive global experience in the aircraft engine industry. Prior to becoming COO, he was the Senior Vice President of Operations & Engineering, where he led new product development, technology strategy, manufacturing operations and supply chain management. The results of his efforts and leadership have contributed significantly to the company's improved productivity and overall competitiveness.

Adams serves on the advisory boards of the University of Michigan Aerospace Engineering Department and the University of Connecticut School of Engineering. He is also a member of the Connecticut Academy of Science and Engineering.

Adams completed the Stanford Executive Program through the Stanford Graduate
Business School and holds a Bachelor of Science degree in Aerospace Engineering from the University of Michigan.