

**Department of Mechanical and Aeronautical Engineering
Western Michigan University**

Invited Lecture

Intelligent Turbine Engine Control and Health Management

Dr. Sanjay Garg

**Chief, Controls and Dynamics Branch
NASA Glenn Research Center**

10:00am-11:00am, Thursday, 13 November 2008
Room D-202, Engineering Building, Parkview Campus, WMU

With the increased emphasis on aircraft safety, enhanced performance and affordability, and the need to reduce the environmental impact of aircraft, there are many new challenges being faced by the designers of aircraft propulsion systems. The Controls and Dynamics Branch at NASA (National Aeronautics and Space Administration) Glenn Research Center (GRC) in Cleveland, Ohio, is leading and participating in various projects in partnership with other organizations within GRC and across NASA, the U.S. aerospace industry, and academia to develop advanced controls and health management technologies that will help meet these challenges through the concept of Intelligent Propulsion Systems. The key enabling technologies for an Intelligent Propulsion System are the increased efficiencies of components through active control, advanced diagnostics and prognostics integrated with intelligent engine control to enhance operational reliability and component life, and distributed control with smart sensors and actuators in an adaptive fault tolerant architecture. This presentation describes the current activities of the Controls and Dynamics Branch in the areas of active component control and propulsion system intelligent control, and presents some recent analytical and experimental results in these areas.

Biography

Dr. Sanjay Garg received the Ph.D. degree in Aeronautics from Purdue University. Dr. Garg has worked at NASA Glenn Research Center (GRC) since 1988. At GRC, Dr. Garg is responsible for the development of advanced dynamic modeling, health management, and control design and implementation technologies for application to current and future aerospace propulsion systems. Dr. Garg has authored over 60 technical papers, and served as journal editor and chairs of national and international conferences. Dr. Garg is a recipient of the NASA Medal for Exceptional Achievement and a NASA fellowship for the Program for Management Development at Harvard Business School.

For information, please contact Dr. William Liou at 6-3430.