

The George W. Woodruff School of Mechanical Engineering at Georgia Tech

Presents

The Annual

Harold W. Gegenheimer Lecture Series on Innovation



Featuring:

Mark D. Jenks

787 Wing, Empennage and Landing Gear Team Leader
The Boeing Company
Everett, Washington

Speaking About:

***Development of the Boeing 787:
Customers, Composites, and
Collaboration***

Wednesday, December 6, 2006, 3:00 P.M.

Ferst Center for the Arts
(Near the Student Services Building)
Georgia Tech Campus
Atlanta, Georgia

There will be a reception after the lecture at the Ferst Center.

Parking is available. To arrange for parking, please call (404) 894-3200 by Friday, December 1st.

Synopsis of the 2006 Gegenheimer Lecture

Boeing's 787 Dreamliner represents not only a breakthrough in aerospace structures technology with its first-ever composite fuselage and wing, it also represents a major advance in large-scale global collaboration. The development process began with the Sonic Cruiser, a radically new concept for increasing the speed of large commercial jet transports. Early on, it was recognized that the same basic suite of technologies that enabled higher speed at acceptable cost, could also provide vastly superior operating economics (through lighter weight and lower maintenance costs) with today's Mach .85 performance. After an exhaustive process working with the world's major airlines, Boeing selected efficiency over speed and the 7E7 (later renamed the 787 Dreamliner) was born.

The formal development process began with the program launch in 2003 and recently has moved into initial production with the fabrication of the first major structures for airplane #1 at seven major production sites around the world (Alenia, Kawasaki, Fuji, Mitsubishi, Spirit, Vought and Boeing) and the start of major assembly of the wing at FHI's Handa plant outside of Nagoya, Japan. The initial full-scale structural tests of the wing have been completed, the first fuselage sections are in production at four major sites around the world, and the first massive composite wing skins have been produced by MHI in their new facility in Nagoya.

The other breakthrough developed during this period was the creation of a whole new business model for global collaboration. Along with an advanced suite of design and collaboration tools developed with Dassault Systems, Boeing assembled a network of the world's leading aerospace firms to participate in the early configuration development process and take primary responsibility for the detail design and manufacture of large integrated volumes of the airplane. This diverse base of highly integrated partnerships has led to vastly improved efficiencies through technology sharing as well as leveraging the differences in company and national cultures and their varied approaches to problem solving.

In the end, the true competitive advantage stems not from any individual technology, but rather from the combined ability to integrate intimate customer knowledge, to identify and develop the highest leverage technologies from around the world and to effectively marshal the diverse strengths of the global aerospace industry.

Biographical Sketch

Mark Jenks was named 787 Wing and Empennage Life Cycle Product Team Leader in June 2003. In this position, he leads the international team responsible for design, manufacture, certification and delivery of the wing, empennage, and landing gear for the 787. Prior to his current assignment, he was Director of Technology Integration for the Sonic Cruiser program, responsible for identifying and integrating all program requirements for advanced technology and assuring their readiness to support production.

Previously, Jenks was Chief Engineer and Deputy Program Manager for the International Space Station (ISS) in Huntsville, Alabama. Included were primary design, manufacturing and test responsibility for the major U.S. pressurized elements, including the "Unity" Node and "Destiny" Laboratory modules, the Joint U.S./Russian Airlock, as well as the common berthing mechanism, hatch, and payload racks used throughout the station.

Before coming to Huntsville in early 1996, Jenks managed the Helicopters Division Developmental Center in Philadelphia. As Center Manager, Jenks had responsibility for all Developmental Operations in Philadelphia, including the manufacture, assembly, and test of Boeing's portion of the RAH-66 Comanche helicopter and structural testing of the V-22 Static Test Article.

Prior to taking responsibility for Developmental Operations, Jenks held positions in Manufacturing Technology, Tool Engineering, Internal Audit, Project Engineering, and Aerodynamics Research.

A Boeing employee since 1983, Jenks was selected by Boeing for the MIT Leaders for Manufacturing Program in 1989 and received M.S. degrees in Management and Materials Engineering. Jenks also holds B.S. and M.S. degrees in Aeronautical Engineering from Rensselaer Polytechnic Institute.

About the Lecture Series

The Lecture Series on Innovation was established in 1995 through an endowment from Mr. Harold W. Gegenheimer (Class of 1933) to support student programs that encourage creativity, innovation, and design. Through the lecture series and support of capstone design projects, students are exposed to processes that stimulate creativity and lead to inventions and patents.

1995 **Dr. Jerry M. Woodall**
Distinguished Professor of Microelectronics at Purdue University

1996 **Mr. Burt Rutan**
President and CEO of Scaled Composites, Inc.

1997 **Dr. Jim Adams**
Professor at Stanford University

1998 **Dr. George N. Hatsopoulos**
Founder of Thermo-Electron Corporation

1999 **Mr. Richard Teerlink**
Retired President and CEO of Harley Davidson, Inc.

2000 **Dr. Woodie Flowers**
Pappalardo Professor of Mechanical Engineering at MIT

2001 **Dr. Leo Beranek**
Co-Founder, Past President, and CEO of BBN

2002 **Dr. Roger L. McCarthy**
Chairman of Exponent, Incorporated

2003 **Dr. Steven L. Stice**
Professor and Eminent Scholar at the University of Georgia

2004 **Dr. Malcolm Swinbanks**
Chief Scientist, Vibration and Sound Solutions, Ltd.

2005 **Dr. James DeLaurier**
Professor, University of Toronto Aerospace Studies

About the Woodruff School

The Woodruff School of Mechanical Engineering is the oldest degree granting program at Georgia Tech. By enrollment, we are one of the largest schools of mechanical engineering in the country. The School offers academic and research programs in mechanical engineering, nuclear and radiological engineering, medical physics, bioengineering, and paper science and engineering. The enrollment includes 1721 undergraduates and 723 graduate students. Studies are directed by a full-time staff of 85 professors, including ten joint faculty from other schools on campus, 27 research faculty, and five academic professionals, who are supported by 47 staff members. The George W. Woodruff School of Mechanical Engineering is the only educational institution to be designated a Mechanical Engineering Heritage Site by the American Society of Mechanical Engineers. For more information about the Woodruff School contact:

Phone: (404) 894-3200

Fax: (404) 894-8336

E-mail: information@me.gatech.edu

Online: www.me.gatech.edu

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