



The 8th Annual
Dayton Engineering
Sciences Symposium
October 29th 2012



WELCOME

On behalf of the Organizing Committee, we would like to welcome you to the 8th Annual Dayton Engineering Sciences Symposium (DESS). Sponsored by the Dayton Section of the American Society of Mechanical Engineers (ASME), the symposium is designed and intended to facilitate communication between members of the regional engineering community, to provide a forum for students, engineers, and scientists, to present their work, and to sharpen their technical presentation skills.

This year's symposium features over 100 technical presentations spanning a broad range of engineering and science, along with a keynote speech by Dr. Kevin Bowcutt, *Chief Scientist of Hypersonics at The Boeing Company*, entitled "**Advancing the Promise of Hypersonics Through Flight Testing**".

We hope that this symposium serves the Dayton Region's professional communities needs in terms of technology exchange and networking opportunities. Its success would not have been possible without the active participation of speakers, session chairs, sponsors, students, faculty, government and industry representatives, organizing committee, and the ASME Dayton Section Executive Board. We sincerely hope that you have a great time and we thank each and every one of you for your dedicated and committed contributions.

Haibo Dong, Symposium Chair

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KEYNOTE SPEAKER

Dr. Kevin G. Bowcutt is a Boeing Senior Technical Fellow and Chief Scientist of Hypersonics for The Boeing Company, with over 29 years of experience. He is an internationally recognized expert in hypersonic aerodynamics, propulsion integration, and vehicle design and optimization.

Dr. Bowcutt's notable accomplishments include developing the modern viscous-optimized hypersonic waverider; serving in technical leadership roles on the National Aero Space Plane (NASP) program; leading a project to flight test scramjet engines at hypersonic speeds by launching them from a light gas gun; originating the concept, and leading multidisciplinary design optimization (MDO) and flight sciences tasks for a DARPA Mach 7 scramjet-powered waverider vehicle (now the USAF X-51); leading a design team that created a twostage-to-orbit air-breathing reusable launch vehicle concept; and working on the Space Shuttle Columbia accident investigation in the area of aero-thermal-structural failure analysis and simulation of the damaged wing leading edge. He is currently a technical advisor to the X-51 program; leads hypersonic vehicle MDO system development for Boeing and Boeing's technical participation in the Hypersonic International Flight Research Experimentation (HIFiRE) program—a collaborative hypersonic flight experiment program involving the U.S. Air Force Research Laboratory (AFRL), two Australian entities, and Boeing. Dr. Bowcutt is a Fellow of the American Institute of Aeronautics and Astronautics as well as the Royal Aeronautical Society. He holds BS, MS and PhD degrees in aerospace engineering from the University of Maryland.



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