

## 2006 Best Papers

During 2006, the following technical papers were selected as a "Best Paper." Authors received a certificate of merit, recognizing technical and scientific excellence.

### **AAS/AIAA Astrodynamics Specialist Best Paper**

"Long-Term Attitude Drift Of Spinning Spacecraft Under Solar Radiation Torques" by Vaivos Lappas, University of Surrey, Guildford, Great Britain, and Jozef Van Der Ha, Mission Design and Operations, Deming, Washington.

### **AAS/AIAA Space Flight Mechanics Best Paper**

"Designing Capture Trajectories to Unstable Periodic Orbits Around Europa," AAS paper 06-189 by Ryan Russell and Try Lam, Jet Propulsion Laboratory, Pasadena, California.

### **AIAA Aeroacoustics Best Student Paper**

"Generation and Scattering of Sound in Vortical Flow," AIAA Paper 2005-3023, by Christopher Heaton and Nigel Peake, University of Cambridge, Cambridge, Great Britain

### **AIAA Aerospace Power Systems Best Paper**

"Power System Design for a Spacecraft Simulator Using Energy Storage Flywheels," AIAA Paper 2005-5643," by Brian Wilson and Jerry Fausz, U. S. Air Force Research Laboratory, Kirtland AFB, New Mexico, Vit Babuska, General Dynamics, Kirtland AFB, New Mexico, and Cal Potter, Honeywell, Tempe, Arizona.

### **AIAA Aerospace Power Systems Best Student Paper**

"A Generalized Aircraft Sizing Method and Application to Electric Aircraft," AIAA Paper 2005-5574, by Taewoo Nam, Danielle Soban, and Dimitri Mavris, Georgia Institute of Technology, Atlanta, Georgia.

### **AIAA Air Breathing Propulsion Best Paper**

"Numerical Simulations of Stall and Stall Control in Axial and Radial Compressors" AIAA Paper AIAA 2006-0418 by Jen-Ping Chen, Mississippi State University, Starkville, Mississippi, Robert Webster, University of Tennessee, Chattanooga, Tennessee, and Michael Hathaway, Gregory Herrick, and Gary Skoch, Army Research Laboratory, Cleveland, Ohio.

### **AIAA Applied Aerodynamics Best Paper**

"Control of Vortical Flows Using Simulated Plasma Actuators," AIAA Paper 2006-0505, by Miguel Visbal and Datta Gaitonde of the Air Force Research Laboratory, Wright-Patterson AFB, Ohio.

### **AIAA Air Transportation Systems and Operations**

"Multi-Center Traffic Management Advisor: Operational Test Results," AIAA Paper 2005-7300. by Todd Farley, Steven Landry and Ty Hoang, NASA Ames Research Center, Moffett Field, California; Monicarol Nickelson, Federal Aviation Administration,

Moffett Field, California; Kerry Levin and Dennis Rowe, MITRE Center for Advanced Aviation Systems Development, McLean, Virginia; and Jerry Welch, MIT Lincoln Laboratory, Lexington, Massachusetts

**AIAA Atmospheric Flight Mechanics Best Papers**

“Nonlinear Inversion Control for a Ducted Fan UAV,” AIAA Paper 2005-6231, by Christina Spaulding, Mohammadrez Mansur, Mark Tischler, Ronald Hess, University of California, and James Franklin.

“Insect Flight Dynamics and Control,” AIAA Paper 2006-0032, by Graham Taylor, Richard Bomphrey, and . Jochem ‘t Hoen, Oxford University, Oxford, Great Britain.

**AIAA Fluid Dynamics Best Paper**

“Thin Shock-Layer Theory Revisited,” AIAA Paper 2005-5194, by Philip Roe, University of Michigan, Ann Arbor, Michigan.

**AIAA Gossamer Spacecraft Forum Best Paper**

"Mechanics of Systematically Creased Thin-Film Membrane Structures," AIAA Paper 2005-1975 by Sergio Pellegrino and Alessandro Papa, University of Cambridge, Cambridge, Great Britain.

**AIAA Ground Testing Best Paper**

"Improvements to the Total Temperature Calibration of the NASA Glenn Icing Research Tunnel," AIAA Paper 2005-4276, by Earnest Arrington, Sierra Lobo Inc., Cleveland, Ohio, and Jose Gonzalez, NASA Glenn Research Center, Cleveland, Ohio.

**AIAA Guidance, Navigation, and Control Best Papers**

"Pitch-Altitude Control and Terrain Following Based on Bio-Inspired Visuomotor Convergence," AIAA Paper 2005-6280, by James Humbert, University of Maryland, College Park, Maryland, and Richard Murray and Michael Dickinson, California Institute of Technology, Pasadena, California.

“Modeling, Analysis, and Simulation of GPS Carrier Phase For Spacecraft Navigation," AIAA Paper 2005-6053,"by Mark Psiaki and Mohiuddin, Cornell University, Ithaca, New York.

**AIAA Hybrid Rockets Best Paper**

"Evaluation of Homologous Series of Normal-Alkanes as Hybrid Rocket Fuels," AIAA Paper 2005-3908, by Arif Karabeyoglu, Brian Cantwell, and Jose Stevens, Stanford University, Stanford, California.

**AIAA Liquid Propulsion Best Paper**

“Experimental Study of Combustion Instabilities in a Single-Element Coaxial Swirl Injector” AIAA Paper 2005-4298, by James Sisco, Kevin Miller, Nicholas Nugent, and William Anderson, Purdue University, West Lafayette, Indiana.

**AIAA Meshing Visualization and Computational Environments Best Paper**

"A Geometrically-derived Background Function for Automated Unstructured Mesh Generation," AIAA 2005-5240, by Shahyar Pirzadeh and Lee A Kania

**AIAA Modeling and Simulation Best Paper**

"Prediction of the Necessary Degrees of Freedom for Helicopter Real-Time Simulation Models" AIAA Paper 2005-6206," by Marilena Pavel-bos, Delft University of Technology, The Netherlands.

**AIAA Multidisciplinary Design Optimization Best Papers**

"A Framework for Aircraft Conceptual Design and Environmental Performance Studies," AIAA Paper 2004-4314, by Nicolas Antoine, Airbus SAS, Toulouse, France, Karen Willcos and Garrett Barter, Massachusetts Institute of Technology, Cambridge, Massachusetts, and Ilan Kroo, Stanford University, Stanford, California.

"Multi-fidelity Design Optimization of Low-boom Supersonic Business Jets," AIAA Paper 2004-4371, by Seongim Choi, Juan Alonso, Ilan Kroo, and Mathias Wintzer, Stanford University, Stanford, California.

**AIAA Nuclear and Future Flight Best Paper**

"Microinstabilities in the Gasdynamic Mirror Propulsion System," AIAA Paper 2005-4136, by William Emrich, NASA Marshall Space Flight Center, Huntsville, Alabama

**AIAA Plasmadynamics and Lasers Best Paper**

"Simulation of Time-Dependent Oscillations in a CW HF Chemical Laser Confocal Unstable Resonator," AIAA Paper No. 2005-5365, by David L Carroll and Andrew Palla of CU Aerospace, Urbana, Illinois, and Lee Sentman, University of Illinois at Urbana-Champaign, Urbana, Illinois.

**AIAA Plasmadynamics and Lasers Best Student Paper**

"Feed-Forward Adaptive-Optic Correction of Aero-Optical Aberrations Caused by a Two-Dimensional Heated Jet," AIAA Paper 2005-4776, by Daniel Duffin, University of Notre Dame, South Bend, Indiana.

**AIAA Propellants and Combustion Best Paper**

Dynamics of Droplet-Film Collision," AIAA Paper 2005-0352," by Kuo-Long Pan National Central University, Taiwan and Chung Law, Princeton University. Princeton New Jersey.

**AIAA Solid Rockets Best Paper**

"Polymer Nanostructured Materials For Propulsion Systems," AIAA Paper 2005-3606, by Joseph Kroo, University of Texas at Austin, Austin, Texas, Louis Pilato and Gerry Wissler, KAI Inc., Austin, Texas

**AIAA Terrestrial Energy Best Paper**

“Examination of Methane-Hydrogen Mixture Flame Using Isotope Shift/PLIF Spectroscopy,” AIAA Paper 2006-0376, by Ashwani Gupta, University of Maryland, College Park, Maryland, and Atsushi Katoh and Kuni Kitagawa, Nagoya University, Nagoya, Japan

**AIAA Thermophysics Best Paper**

"Radiative Properties of Anisotropic Microrough Silicon Surfaces," AIAA 2005-5209, by Zhuomin, Zhang, Hyunjin Lee, and Qunzhi Zhu, Georgia Institute of Technology, Atlanta, Georgia.

**ASME/Boeing Best Paper**

"NASA Structural Analysis Report on the American Airlines Flight 587 Accident Local Analysis of the Right Rear Lug," AIAA Paper 2005-2255 by Ivatury Raju, Edward Glaessgen, Brian Mason, Thiagarajan Krishnamurthy, and Carlos Davila, NASA Langley Research Center, Hampton, Virginia.

**ASME Propulsion TC Best Paper**

"A Performance Study of a Super-Cruise Engine With Isothermal Combustion Inside The Turbine," AIAA Paper 2005-4197, by Ya-tien Chiu, GE Infrastructure Energy, Greenville, South Carolina, and Peter King and Walter O'Brien, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

**David Weaver Best Student Paper**

“Heat Dissipation with Pitch Based Carbon Foams and Phase Change Materials," AIAA 2005-5070," by Kevin Wierschke and Milton Franke, Air Force Institute of Technology, Wright-Patterson AFB, Ohio, and Roland Watts and Rengasamy Ponnappan, Air Force Research Laboratory, Wright-Patterson AFB, Ohio.

**Jefferson Goblet Student Paper**

“Path Definitions for Elastically Tailored Conical Shells” AIAA Paper 2006-1940, by Adriana Blom, Delft University of Technology, Delft, The Netherlands.