



# Momentum

News to accelerate the aerospace profession

Member e-Newsletter

September 2010

## AIAA News

AIAA 2010 SPACE Attendees “Imagine, Innovate, and Collaborate”



The AIAA SPACE 2010 Conference & Exposition, one of the Institute’s annual premier events, was held at the Anaheim Convention Center and the Hilton Anaheim Hotel, in Anaheim, CA, 30 August – 2 September. Jeff Trauberman, vice president, business development for Boeing Network and Space Systems, and John Jacobson of Lockheed Martin Space Systems Company served as the general chairs of SPACE 2010. The executive chairs were: Charles Elachi, director, NASA Jet Propulsion Laboratory; Lt. Gen. John T. Sheridan, commander, U.S. Air Force Space and Missile Systems Center; Roger Krone, president, network and space systems, integrated defense systems, The Boeing Company; and Joanne Maguire, executive vice president, Lockheed Martin Space Systems Company. This year’s conference was a great success, with over 1,000 attendees, and its theme of, “Imagine, Innovate, Collaborate” was highlighted by several outstanding sessions.

The opening plenary session on Tuesday, 30 August, “Space – Imagine, Innovate, Collaborate,” featured keynote speaker, Bran Ferren, co-chairman and chief creative officer of Applied Mind, Inc., speaking on the critical needs in the aerospace industry. Ferren made the observation that most attendees in the audience had “gray hair and glasses,” and emphasized that “we are an aging community” and that we need to once again begin to inspire today’s youth about science and math. On the best way to interest today’s youth, Ferren suggested the following, “Tell them a story. Storytelling is the world’s oldest profession. We need to help tell a story. Inspire young minds and get them excited about science and math. The Mars Rover was a success because it focused on the stories of the people behind it.”

[Full Story >](#)

*(Image credit: Rob Greer Photography)*

## Honors & Awards

Recognizing Members for Technical Achievement and Service Awards

- [Achille Messac](#)
- [Cessna Skycatcher Design Team](#)
- [Daniel Raymer](#)
- [Harvey Berger](#)
- [J. D. Hunley](#)
- [Michael Gass](#)
- [Michael Leahy](#)
- [STP Sat-1 Team](#)
- [STS-125 Team](#)
- [Todd Farley](#)
- [Wanda Austin](#)

### AIAA Seeking Nominations for the AIAA Engineer of the Year Award

Do you know someone who has made a recent (within the past two years) individual contribution in the application of scientific and mathematical principles leading to a significant accomplishment or event worthy of AIAA’s national or international recognition? Submit a nomination to your Region’s Deputy Director-Honors and Awards as soon as possible. Download the [nomination form](#). For further information contact [Carol Stewart](#).

AIAA Seeking

## Students, Scouts, Teachers, and Parents Enthusiastically Take Part in 2010 Education Alley



Over 1500 students, scouts, teachers, and parents converged on the Anaheim Convention Center to attend this year's SPACE 2010 Education Alley. In addition to those who made it to Anaheim, many more students from across the country participated in Education Alley via webcasts hosted from NASA's Johnson Space Center in Houston and from the Desert RATS field test in Arizona. Students participating via webcast, including those in Anaheim, had the opportunity to visit with scientists and engineers, view presentations by astronaut Scott Parazynski, Dan the Rocketman, cryogenics engineers, GPS engineers, and museum educators from the National Air and Space Museum, Steven F. Udvar-Hazy Center and the Discovery Science Center. We thank this year's sponsors, Lockheed Martin Corporation, The Boeing Company, Raytheon Company, and The Aerospace Corporation. Now in its ninth year, Education Alley is devoted to making science, technology, engineering, and math ("STEM") relevant to students to inspire and motivate them to consider STEM careers in the future. For more information on Education Alley please contact [Lisa Bacon](#), AIAA's K-12 STEM Outreach Manager.

[More Info >](#)

## Invest in the Future!



Do you remember going back to school? It was an exciting time filled with the joy of reuniting with friends and the worry of the new year's challenges. You may also remember the fear of the unknown; how to pay for college; or where to get academic support. Today's aerospace engineering students face that same fear. Tuitions are growing at an alarming rate and advanced degrees in our field are shrinking. We are asking you to "Invest in

the Future" by making a contribution to The AIAA Foundation. By doing so, you will be supporting students who are following in your footsteps.

Why should you invest? Because your donation impacts the future! The AIAA Foundation offers a wealth of resources to support student and educators including scholarships, classroom grants, design competitions, and student conferences.

[More Info >](#)

## AIAA Applauds Administration's Export Control Reform

AIAA applauds the Obama Administration's recently announced reforms to national export control policies. The changes made to the International Traffic in Arms Regulations (ITAR) will streamline the technology export process for America's aerospace and related component manufacturers, allowing them to compete more fairly in the world market.

## Nominations for the Speas Airport Award

The 2011 AIAA/AAAE/ACC Jay Hollingsworth Speas Airport Award recognizes individuals who have contributed toward achieving compatible relationships between airports and/or heliports and their surrounding environment. Examples might be in airport land use, airport noise reduction, protection of critical environmental resources, architecture, landscaping, or other design considerations to improve compatibility of airports and their communities, etc. The recipient receives a \$10,000 honorarium and certificate. [Nominations](#) are due 1 October 2010.

[Past Award Recipients >](#)

## Sustained Service Award Nominations

The Sustained Service Award is to recognize sustained, significant service and contributions to AIAA by members of the Institute. A maximum of 20 awards are presented each year. Nomination forms are located on the AIAA Web site under forms. The deadline for nominations is 1 October.

[View Flyer >](#)

## AIAA Recognizes JAXA Ion Thruster Team with Outstanding Achievement Award

AIAA has honored the Japan Aerospace Exploration Agency (JAXA) Hayabusa ion thruster team with the AIAA Electric Propulsion Outstanding Technical Achievement Award. The award recognizes the team for its outstanding work on the ion thruster that powered the Hayabusa mission, an unmanned space probe that made a seven-year round trip to the asteroid Itokawa, returning the first piece of an asteroid ever brought to Earth.

[More Info >](#)

## AIAA Member Ruth McClung Wins Arizona's 7th Congressional District Primary



AIAA congratulates AIAA member Ruth McClung on her recent victory in Arizona's 7th congressional district primary election. Carol Cash, AIAA vice president of public policy, stated: "We believe it is critical that citizens with scientific and engineering expertise become involved in the political process and applaud AIAA member Ruth McClung for her initiative to do so. Citizen legislators with scientific and engineering training lend their voices to debates on policy matters in wide array of areas – aerospace, defense, environmental policy, technology innovation – and ensure that America will continue to be at the forefront of technological innovation. I hope that more citizens with specific training in science and engineering follow Ruth's initiative and become involved in our nation's democratic process."

[More Info >](#)

## More Presentations from JPC/IECEC Now Available Online

Additional presentations from the 2010 Joint Propulsion Conference and the 8th International Energy Conversion Engineering Conference, which took place 25–28 July in Nashville, TN, are now available on [www.aiaa.org](http://www.aiaa.org).

[More Info >](#)

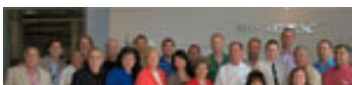
## AIAA Report Urges Increased Role for Aerospace Technology in Understanding and Mitigating Climate Change

### *Recommendations Also Call for More Energy-Efficient "Green" Aviation*

AIAA has released a report stressing the urgency of developing more energy-efficient "green" aviation, and the critical need to use aerospace technology in monitoring, mitigating, and adapting to climate change. The report is based on discussions and recommendations made by participants in AIAA's May 2010 "Inside Aerospace Forum" for aviation and space leaders from around the world.

[More Info >](#)

## AIAA Commercial Space Group Tours SpaceX Facilities with Attendees of 2010 SPACE Conference in Anaheim



[Full Story >](#)

## Featured Products

### Back to School Book Sale!

Save 15% off the AIAA member price on more than a dozen AIAA Education Series titles! Sale ends 1 October 2010.

[More Info >](#)

## At the Printer

### [German Development of the Swept Wing: 1935–1945](#)

edited by Hans-Ulrich Meier, in September

### [Multiple Scales Theory and Aerospace Applications](#)

by Rudrapatna V. Ramnath, in October

### [SKYCRANE: Igor Sikorsky's Last Vision](#) by John A. McKenna, in September

### [Emergence of Pico- and Nanosatellites for Atmospheric Research and Testing](#)

by Purvesh Thakker and Wayne Shiroma, in October

## AIAA Journal News

AIAA commemorates the 10,000th submission to the *Journal of Guidance, Control, and Dynamics* in its 33-year history. Congratulations to the author of the 10,000th submission: Min Xue.

[More Info >](#)

A survey paper on [Liquid-Propellant Rocket Engine Throttling](#) will appear in the Sept/Oct issue of the *Journal of Propulsion and Power*  
[More Info >](#)

A special section on ["Atmospheric Entry of the Stardust Sample Return Capsule,"](#) featuring guest editors Dean Kontinos and Michael Wright, will publish in the Sept/Oct and Nov/Dec issues of the *Journal of Spacecraft and Rockets*.

[More Info >](#)

## Quick Takes



The [AIAA Commercial Space Group](#), along with numerous attendees of the AIAA SPACE 2010 Conference in Anaheim, CA, were fortunate enough to receive a guided tour of the SpaceX plant facilities in Hawthorne, CA, on Friday, 3 September. The SpaceX plant in Hawthorne is the original plant used by Douglas Aircraft. During a very enjoyable and educational experience, participants viewed videos of various launches, and were briefed on SpaceX systems as well as their launch schedule. AIAA offers a special thanks to Mari Gravlee, Event Coordinator for the AIAA Commercial Space Group, for facilitating the tour. For more information on the AIAA Commercial Space Group, please contact [Ken Davidian](#), chair, or [Eleanor Aldrich](#).

## Last Call for AIAA Foundation Educator Achievement Award Nominations

Do you know an outstanding K–12 classroom educator who deserves to be recognized for inspiring their students in science, technology, engineering, and math? We are looking for up to seven educators to be recognized at the 2011 Aerospace Spotlight Gala in Washington, DC. Each winner, along with a guest, will receive an all-expenses-paid trip to Washington to attend the Gala. Nominations will be accepted as PDF attachments. Please [download](#) the nomination packet. Nominations should be sent to Lisa Bacon ([lisab@aiaa.org](mailto:lisab@aiaa.org)) by no later than 5:00 PM EDT on 30 September. Winners will be announced in December 2010.

## AIAA Mourns Passing of Former Senator Ted Stevens



AIAA mourns the death of former Senator Ted Stevens of Alaska, who was killed in a plane crash in Alaska on 9 August. He was 86. Senator Stevens, who represented Alaska in the U.S. Senate from 1968 to 2008, was an early supporter of the “Capstone” Next Generation Air Traffic Control program. The program served as a model for automatic dependent surveillance-broadcast flight (ADS-B), which allowed specially equipped planes and air traffic control centers to monitor flight through the use of GPS technology, and laid the groundwork for significant future advances in air traffic control technology.

[More Info >](#)

## News from Region VII



## AIAA Salutes National Aerospace Day, 16 September, and National Aerospace Week, 12–18 September



From the Wright Brother’s first flight, to the Apollo project, the Space Shuttle, advanced meteorological forecasting, and the Global Positioning System, we celebrate the aerospace community’s technological innovations and vast contributions to society.

[More Info on National Aerospace Week >](#)

[More Info on National Aerospace Day >](#)

## FAA Design Competition for Universities

AIAA is pleased to support the continuation of the FAA’s Design Competition for Universities for the 2010–2011 academic year. AIAA encourages interested members to participate in the competition, and to share the news about it with colleagues and fellow students. The Competition guidelines and resources are posted at the [competition Web site](#). The broad challenge categories of Airport Operations and Maintenance, Runway Safety/Runway Incursions, Airport Environmental Interactions, and Airport Management and Planning embrace many engineering, science, information technology, psychology, and management disciplines. The competition is open to individual and student teams at U.S. colleges and universities (both undergraduate and graduate) working under the mentorship of a faculty advisor. Winners can earn cash awards and first-place winners have the opportunity and travel funds to present



Recently, several AIAA members in Nigeria participated in a series of engineering workshops in Abuja. The workshops took place at the Government Secondary School, Wuse-Abuja. AIAA Senior Member Lawal Lasisi Salami, seated center, was a conference presenter. For more information, contact [Emily Springer](#).

## Conferences and Events

### Panel: How Space Exploration Enhances U.S. Medicine, Life Sciences, and Economy

Industry and academic leaders will meet in the nation's capital on 16 September to discuss how space exploration enhances the United States' "biological economy," and what advances in telemedicine life sciences made possible by the space program mean to our nation's long-term economic and physical health as well as to the future of space exploration. Organized by AIAA, "Space and the Biological Economy – Driving the Lift" will feature panelists from industry and academia. The discussion is free and open to the public, and will take place on Thursday, 16 September, at 1:00 p. m. in Room 2325 of the Rayburn House Office Building, Independence Avenue and South Capitol Street, Washington, DC 20003.

[More Info >](#)

### Registration Now Open for the 2010 Missile Sciences Conference



The AIAA Missile Sciences Conference focuses on technology and science as applied to missile system and sub-system design, from concept development to operational fielding and testing. The conference provides participants with a classified forum to communicate to a unique audience of peers who are involved in the detailed implementation of weapon system design and test. We invite you take advantage of this opportunity to share your knowledge with a broader community in hopes that we can continue together to provide the U.S. warfighter and our allies with the means to insure our continued security and freedom. Join AIAA on 16–18 November, at the Hyatt Regency Monterey in Monterey, CA, for the 2010 Missile Sciences Conference. Security Clearance Required. Security Deadline 1 November. Early Bird Registration 18 October. Visit [www.aiaa.org/events/missilesiences](http://www.aiaa.org/events/missilesiences) for more information or to register.

their design at a national aviation event in summer 2011. A notice of intent is strongly encouraged. Please contact [Mary Sandy](#) or [Debbie Ross](#) with any questions.

### Attention AIAA Members

The September issue of *Aerospace America* is now available online for AIAA members. Don't miss this month's feature story, "ARIANESPACE, Thirty years and growing," in which author Mark Williamson discusses the 30th anniversary of the creation of Europe's leading rocket company, which has launched over half the commercial satellites now in service, and "whose order book is now larger than ever."



To access the September issue of *Aerospace America* please visit [www.aiaa.org/myaiaa](http://www.aiaa.org/myaiaa) and log in.

### Have an Opinion on a Current Aerospace Topic? Want to Raise an Issue?

Send a note to [elainec@aiaa.org](mailto:elainec@aiaa.org) and see it posted on *Aerospace America's Virtual Town Hall*.

Check it out (including the newest topics recently posted) and [join in on the discussion](#).

### AIAA Career Center

AIAA is pleased to provide members with a Career Center, with extensive lists of resumes and available positions. A powerful and user-friendly

## Register Now for This Course Co-Located with the 2010 AIAA Missile Sciences Conference

14–15 November, Monterey, CA

- [Warhead Course Generated on Anti-Ballistic Missile Warhead Technology:](#)

This course deals with the complicated subject of anti-ballistic missile concepts and the associated trades of direct hit technology versus warheads. The mathematics and system trades of computing ballistic missile vulnerability will be taught. These vulnerability models are flown down to Kill Enhancement requirements, and the associated modeling techniques are provided in mathematical details. The course will provide a comprehensive understanding of how to model and design Kill Enhancement concept against ballistic missiles.

This course, developed with designs and modeling problems, deals with Side Shooting Warhead Concepts, Rod Warhead Optimization Concepts, MAT-Projector Design, Shield Design, Penetration Equations in Conjunction with Warhead Design. The course contains many solved problems with Hydrocode Analysis.

## ASM 2011 Registration Opening in October



Registration for the 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition will be opening next month. Join us at ASM from 4–7 January 2011 at the Orlando World Center Marriott. ASM 2011 will feature over 275 technical sessions, industry and government panel sessions, high-level keynote speakers, over 50 exhibitors from industry and government, and multiple networking opportunities. Visit the Web site for the most up-to-date conference information at [www.aiaa.org/events/asm](http://www.aiaa.org/events/asm).

## Submit Your Abstract for the Aerodynamic Decelerator Systems Technology Conference



The abstract deadline for the 21st AIAA Aerodynamic Decelerator Systems

search tool allows you to find the ideal job or candidate.

[More Info >](#)

## Connect with AIAA

It's now easier than ever to social network with AIAA, via our [Facebook page](#), our [Twitter page](#), our [YouTube page](#), our [LinkedIn page](#), and our [Flickr page](#). Visit [www.aiaa.org](http://www.aiaa.org) and follow one of the links on the left-hand side.

## Member Spotlight

Dr. John Grunsfeld and the STS-125 Crew Receive the AIAA Haley Space Flight Award for 2010



Dr. John Grunsfeld and the crew of space shuttle mission STS-125 received the AIAA 2010 Haley Space Flight Award on 1 September, at an awards luncheon held in conjunction with the AIAA SPACE 2010 Conference, 29 August–2 September, at the Anaheim Convention Center, Anaheim, CA. For their contributions to science and for their work on upgrading and repairing the Hubble Space Telescope, AIAA has chosen to feature the crew as September's Member Spotlight.

The crew of space shuttle mission STS-125 included: Scott D. Altman, commander; Gregory C. Johnson, pilot; and mission specialists Andrew J. Feustel, Michael T. Good, John M. Grunsfeld, Michael J. Massimino, and K. Megan McArthur. The mission launched on 11 May 2009, and was the fifth and final mission to the

Technology Conference and Seminar is just one month away. This conference, taking place 23–26 May 2011, in Dublin, Ireland, provides the world's leading scientists, engineers, and promising students within the field of parachute and aerodynamic decelerator systems an opportunity to present recent advances before a knowledgeable international audience. Abstracts are currently being solicited in the following technical topic areas: Modeling and Simulation, System Applications and Operations, Testing, Materials and Manufacturing, Design and Development, and other related areas. Submit your paper today by visiting [www.aiaa.org/events/ads](http://www.aiaa.org/events/ads).

Hubble Space Telescope to install new instruments, restore functionality to failed instruments, and replace aging components to permit at least five more years of operation of NASA's flagship space observatory.

[Full Story >](#)

## Call for Papers is NOW OPEN for the 2011 GNC/AFM/MST

## Contact Us

You are invited to submit a draft manuscript for the 2011 AIAA Guidance, Navigation and Control Conference, the 2011 AIAA Atmospheric Flight Mechanics Conference, or a draft abstract for the 2011 AIAA Modeling and Simulation Technologies Conference, scheduled for 8–11 August 2011 at the Oregon Convention Center in Portland, Oregon. These combined conferences represent one of the world's premier forums for the presentation, discussion, and collaboration of science and technology in these highly related fields. The organizers of these conferences welcome attendees to this combined event that will cover a broad spectrum of the study of flight mechanics, modeling, simulation, and the guidance and control of aerospace vehicles. Draft Manuscript/Abstract Deadline: 17 January 2011. Visit [www.aiaa.org](http://www.aiaa.org), [www.aiaa.org/events/gnc](http://www.aiaa.org/events/gnc), [www.aiaa.org/events/afm](http://www.aiaa.org/events/afm), or [www.aiaa.org/events/mst](http://www.aiaa.org/events/mst) for more information.

[Contact the Editor](#) of AIAA Momentum—*News to Accelerate the Aerospace Profession*.  
[Submit](#) story ideas.

## Four Distance Learning Courses – Learn from Home or Work

1 December 2010 - 30 April 2011

- [Spacecraft Thermal Control](#)
- [Advanced Computational Fluid Dynamics](#)
- [Computational Fluid Turbulence](#)
- [Introductions to Computational Fluid Dynamics](#)

## From the AIAA V/STOL Aircraft Systems Technical Committee

The International Powered Lift Conference (IPLC) will take place 5–7 October in Philadelphia, sponsored by AHS International. With more than 70 papers/presentations, an awards banquet at the American Helicopter Museum and Education Center, and VIP panels, this is the premier event for engineers, technologists and managers to discuss the latest developments in jet, prop, and rotor Vertical and/or Short Take-Off and Landing (V/STOL) aircraft research, concepts and programs. The conference is co-sponsored by the American Institute of Aeronautics and Astronautics (AIAA), SAE Aerospace and the Royal Aeronautical Society (RAeS).

Make your plans today and please note the extended reduced room rate block – you don't want to miss this exciting opportunity and the discounted hotel rates will evaporate after 14 September – so now is the time to register for IPLC and make your hotel reservations. Visit [www.vstol.org/iplc](http://www.vstol.org/iplc) and find out all the information you need to know about this must-attend conference.

On Monday, 4 October, two tours are available and both will leave the Sheraton

Society Hill at about 2:30 p.m. and return at approximately 5:30 p.m. The Boeing tour will be of the V-22 Focused Factory (Foreign Nationals are not approved for this tour). Tour participants for the Boeing site must be U.S. Citizens. Picture ID (driver's license) will be required. For those interested in attending please contact AHS Headquarters and provide your name.

AgustaWestland is also offering a tour of its Philadelphia, PA-based facility and this tour is available to all IPLC attendees. A complete facility tour including the AW139 and AW119 production lines is planned. For those interested in attending please contact AHS Headquarters, specifically [Kim Smith](#), and provide your full name, date of birth, country of birth, and country of residency, so that you can obtain the appropriate security clearance to participate in this tour.

It is necessary that all IPLC participants planning to attend the banquet at the American Helicopter Museum phone AHS Headquarters at (703) 684-6777 or email [Kim Smith](#) and let us know that you will be participating. All information for the items above must be provided by 17 September 2010.

The American Institute of Aeronautics and Astronautics (AIAA) is the world's largest technical society dedicated to the global aerospace profession.

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