



# Momentum

News to accelerate the aerospace profession

Member e-Newsletter

December 2010

## AIAA News

### AIAA Organizes New Horizons Challenge

*How Far Can You See?*



**AIAA New Horizons Challenge** We see aerospace soaring into new realms of discovery. To help spur the breakthroughs that change everything, AIAA, with the support of the AIAA

Foundation, has organized the New Horizons Challenge, a contest to design a demonstration competition to develop a groundbreaking innovation. The AIAA New Horizons Challenge asks our members to design a contest, and name a prize amount, that is sure to inspire creative thinking and groundbreaking innovation. The potential areas for innovation are nearly unlimited – from efficient energy storage and long duration flight to nanotechnology and commercial spaceflight, so start thinking and creating!

To enter the contest you must be an AIAA member, and your contest description should be 200 words or less (remember, the gist of the Ansari prize wasn't a government spec: Build and launch a spacecraft capable of carrying three people to 100 km above the earth's surface twice in two weeks), and should include the recommended amount of the prize. Send all entries to the *Aerospace America* editor ([elainec@aiaa.org](mailto:elainec@aiaa.org)) by 13 December 2010.

The Grand Prize winner will receive \$500 and a one-year subscription to the AIAA online journal of their choice. Two runner-up winners will each receive \$250 and a one year subscription to the AIAA online journal of their choice. All three prize winners will be afforded the opportunity to present their contest designs at the [49th AIAA Aerospace Sciences Meeting](#) in Orlando, FL, on Thursday, 6 January.

For complete contest information, rules, and regulations, please visit [www.aiaa.org/NewHorizonsChallenge](http://www.aiaa.org/NewHorizonsChallenge)

### How Far Can You See?

*Share Your Story With Us*

At the [49th AIAA Aerospace Sciences Meeting](#) in Orlando we will be rolling out our new "How Far Can You See?" campaign. While "When Did You Know?" showed what inspired our members to become a part of aerospace, this new phase presents the future visions and hopes that inspire you today to work toward tomorrow.

Please think about "How Far Can You See?" What is your hope for the future of aerospace? What discoveries and breakthroughs are on the way and what difference will they make? Share your story with us in video at the AIAA Pavilion at ASM 5–6

## Honors & Awards

### AIAA Foundation Recognizes Outstanding Educators

*Teachers in Six States to Receive Educator Achievement Awards*

AIAA is pleased to announce the winners of the 2011 AIAA Foundation Educator Achievement Awards.

[List of Award Winners >](#)

### AIAA to Present Awards at 49th AIAA Aerospace Sciences Meeting

*Academic, Literary, and Technical Achievements Spotlited*

AIAA will present several of its prestigious awards, honoring achievements in academic, literary, and technical fields, at a noon awards luncheon on Wednesday, 5 January, in conjunction with the 49th AIAA Aerospace Sciences Meeting, to be held 4–7 January at the Orlando World Center Marriott, Orlando, Florida.

[More Info >](#)

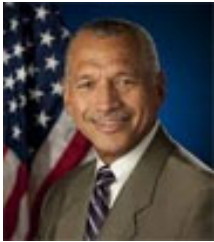
### Calling Aerospace Engineering Educators!

The John Leland Atwood Award, sponsored by AIAA and ASEE, recognizes an aerospace engineering

January. Contact Aaron Bertoglio at [aaronb@aiaa.org](mailto:aaronb@aiaa.org) to set up a filming time or for more information.

## AIAA New Horizons Forum to Explore Space, Speed, and Energy

*NASA Administrator Charles F. Bolden Jr. to Speak on Future of American Space Program*



AIAA is pleased to announce that leaders from academia, government, and industry will once again convene in January in Orlando, Florida, at the [AIAA New Horizons Forum](#). They will discuss the past and future of the space shuttle program, examine the role that aerospace can play in preserving Earth's environment, and consider the future of hypersonic flight.

Featuring a series of keynote addresses and panel discussions, the New Horizons Forum will be presented by AIAA in conjunction with the [49th AIAA Aerospace Sciences Meeting](#), 4–7 January at the Orlando World Center Marriot.

*(Pictured: NASA Administrator Charles F. Bolden. Credit: NASA)*

[More Info >](#)

## AIAA Releases New Standard Addressing Space Systems Verification and Management Process

*Standard Implements Six "Verification Management Processes" to Improve Safety, Reduce Cost and Delay*

AIAA has released a new standard, "AIAA Space Systems Verification Program and Management Process" (AIAA S-117-2010), aimed at standardizing the building of manned and unmanned space systems by creating a uniformly enforced "distributed verification program" that implements six verification management processes at every stage of space system development and construction.

The six verification management processes that the new AIAA standard establishes [are as follows >](#).

[Download a copy >](#) (Free for AIAA members)

## Proposed ANSI/AIAA Flight Dynamics Modeling Standard Available for Second Public Review

A proposed ANSI/AIAA Standards document dealing with flight dynamics modeling is

educator for outstanding contributions to the profession. Nominations are due to AIAA by 1 January 2011.

[More Info >](#)

## Featured Products

Hot Off the Press

[Encyclopedia of Aerospace Engineering: Nine Volume Set](#)

Richard Blockley and Wei Shyy; University of Michigan



Introducing the first large-scale reference work to address the entire range of engineering and scientific principles of aircraft and spacecraft design, construction and operation. The *Encyclopedia of Aerospace Engineering* provides an unparalleled exposition of essential scientific concepts and their application to current engineering practice, laying a foundation for further research and study in specialist publications.

[Purchase Your Copy Today!](#)

## New eBook Titles

*AIAA eBooks – the Most Comprehensive Selection of Aerospace Titles Available in eBook Format Anywhere*

Includes hard-to-find and out-of-print books—from classics in aerospace to current groundbreaking research—published in the *AIAA Education Series* and *Progress in Astronautics and Aeronautics* series. Gain the portability, flexibility, and personalization that eBooks provide. Here's a list of titles that are new to the eBooks database:

- *AIAA Journal*, Vol. 48, Issue No. 12
- *Journal of Aircraft*, Vol. 47, Issue No. 5
- *Journal of Aerospace Computing, Information, and Communication*, Vol. 7, Issue No. 10
- *Journal of Guidance, Control, and*

currently available for public review and comment. The document, "Flight Dynamics Model Exchange Standard," was developed by the AIAA Modeling and Simulation Committee on Standards.

"This standard will facilitate the exchange of simulation models between users. If you are interested in reviewing this document, please click "more info" below. Please note the review instructions on the page.

[More Info >](#)

## AIAA Leadership Visits Museum of Flight in Seattle *Presents Certificate of Appreciation to William E. Boeing, Jr.*



AIAA leadership was pleased to have the opportunity to visit the Museum of Flight in Seattle, WA and present William E. Boeing, Jr., a Certificate of Appreciation for his lifelong role in aviation, his dedicated support to education, and his significant commitment to the preservation of air and space history.

(Pictured: Terri Morse, Larry Brase, Dave Knowlen, William Boeing, Jr., Bob Dickman, Merrie Scott, Klaus Dannenberg, Doug Ball, Scott Eberhardt and Mike Lavelle. Click image for larger version.)

## Engineers' Week is 20–26 February 2011 *Many Activities Featured in Which You Can Participate*

- Judges are needed for the Future Cities Competition – a national competition in the United States that focuses on improving students' math, engineering, and science skills. It includes two levels: winners of state and regional competitions will compete in the National Finals. The goal is to design a futuristic city and discuss its important elements: urban planning, zoning, transportation, energy, economy, environment, and education. More information is available at [www.futurecity.org](http://www.futurecity.org), and to register as a judge please visit [www.futurecity.org/judge](http://www.futurecity.org/judge).
- Tell all the budding essayists you know that the National Academy of Engineering annual essay contest, for 3rd to 12th graders, is now open. Essays are due 1 March 2011. For more information, please visit [www.engineergirl.org/?id=13161](http://www.engineergirl.org/?id=13161).
- Other upcoming related events can be found at [www.mydiscover-e.org/about\\_discover.php](http://www.mydiscover-e.org/about_discover.php).
- Considering an AIAA Engineers' Week event? If you need materials, please try to request them by mid-to-late January in case of inclement weather and office closings. Requests for educational materials can be made to Lisa Bacon at [lisab@aiaa.org](mailto:lisab@aiaa.org).

## AIAA Officially Designates the Cornell Aeronautical Laboratory as an AIAA Historic Aerospace Site



- *Dynamics*, Vol. 33, Issue No. 6
- *Journal of Propulsion and Power*, Vol. 26, Issue No. 6
- *Journal of Spacecraft and Rockets*, Vol. 47, Issue No.5
- *Journal of Thermophysics and Heat Transfer*, Vol. 24, Issue No.4
- *Conference Proceedings from the AIAA SPACE 2010 Conference and Exposition, 30 August–2 September 2010*

[Visit the eBooks Web site today!](#)

## Standards

- New Standard Available: [AIAA Guide to Reference and Atmosphere Models \(AIAA G-003C-2010\)](#)  
Just released, this standard provides guidelines for selected reference and standard atmospheric models for use in engineering design or scientific research. Replaces AIAA G-003B-2004.
- New Standard Available: [AIAA Space Systems Verification Program and Management Process \(AIAA S-117-2010\)](#)  
Just released, this standard enforces a systematic approach to planning and executing verification programs for manned and unmanned space systems based on a distributed approach that corrects fundamental deficiencies associated with the traditional centralized verification approach.

To download a copy of either standard, visit [www.aiaa.org](http://www.aiaa.org) (free for AIAA Members).

## Holiday Book Orders

If you are interested in ordering a book this holiday season, please keep in mind that orders must be placed before 0800 hrs on 17 December or 23 December for same-day shipping.

- Friday, 17 December – closed early
- Thursday, 23 December – closed early
- Friday, 24 December – closed
- Thursday, 30 December – closed early
- Friday, 31 December – closed

**Quick Takes**  
Season's Greetings from



On 1 December, AIAA designated the Cornell Aeronautical Laboratory (known today as Calspan), in Buffalo, New York, as a Historic Aerospace Site. The facility started as a research facility for the Curtiss-Wright company and was donated to Cornell in 1946. Since then, this facility has touched every aspect of aviation and space research. Every military aircraft and space vehicle developed in the United States from the end of World War II to the present day has been tested at this facility. For more information on the AIAA Historic Aerospace Site program, please contact Emily Springer at [emilys@aiaa.org](mailto:emilys@aiaa.org).

(Pictured: Calspan President and CEO Lou Knotts (left) unveils the Historic Site plaque for Cornell Aeronautical Laboratory with AIAA History TC Chair Kevin Burns)

[Video footage from the ceremony >](#)

## Coaches and Mentors Needed

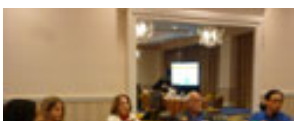
AIAA is recognized as the Aerospace Partner for two high school competitions, [the Real World Design Challenge](#) and [the Conrad Foundation Spirit of Innovation Awards](#). Both competitions pose real-world problems to the students and ask them to develop solutions. The teachers and students who participate in these competitions may not know a lot about aerospace design or space issues, and this is where AIAA comes in. There are many roles that you can play:

- Mentor and Expert: This involves periodically answering questions from the students. They are required to do the work themselves, but may need some advice as to how their concept might work.
- Mentor and Coach: When the finalists in each competition are selected, they then have another opportunity to refine their projects. This opportunity may be more involved as they will be asking a lot of questions. This would be most labor-intensive from January–April.

The RealWorld-InWorld (RWIW) NASA Design Challenge involves students in one of NASA's most exciting challenges—designing and launching the James Webb Space Telescope. This challenge is broken into two phases: a RealWorld (face-to-face) and an InWorld (virtual) phase. College engineering students, engineers and scientists are needed for the InWorld component of the Challenge. During the RealWorld (Phase 1) Challenge, teams of high-school students work as engineers and scientists to explore and design solutions to two real-world problems related to the Webb telescope. During the InWorld (Phase 2) Challenge, college engineering students lead teams of three to five high school students as they complete two evaluated projects that will be completed in a virtual world setting. Each InWorld team is mentored by a scientist or engineer.

For more information about RWIW Challenge visit [www.nasarealworldinworld.org](http://www.nasarealworldinworld.org).

## AIAA Partners with the American Society for Gravitational and Space Biology to Present STEM K–12 Workshop



## AIAA



*Wishing you every happiness this holiday season and throughout the coming year.*

## AIAA Foundation Winter 2011 Newsletter

Check out the AIAA Foundation's [Winter 2011 newsletter](#).

## Adjusting to Winter Behind the Wheel



Because driving in winter conditions is fraught with hazards such as icy roads, poor visibility and the threat of snowstorms, ask yourself the following questions before you get behind the wheel and put your safety at risk.

[More Info >](#)

## AIAA Executive Director Remarks Available Online

- 29 October 2010: remarks at the Space Policy Institute, ["Implementation Issues and U.S. Industry Panel."](#)
- 22 September 2010: remarks at the the U.S. Air Force's Arnold Engineering Development Center Technical Society Luncheon ([AEDC Technical Society Luncheon remarks](#)).
- 9 September 2010: remarks at



the Space Transportation Association Roundtable on Capitol Hill, ["An Engineering Assessment of the Way-Forward in Human Spaceflight."](#)

AIAA was pleased to partner with the [American Society for Gravitational and Space Biology](#) to present a STEM K–12 Workshop to teach their members techniques for interacting with students in the classroom. Erin McKinley, an AIAA Educator Associate, worked with attendees on how to relate to students and taught a hands-on gravity experiment that can be easily replicated. The next day, AIAA was part of a Best Practices in Educational Outreach panel with the Conrad Foundation, the Challenger Learning Center, and Baylor College of Medicine.

To learn more about this and other exciting STEM K–12 programs, please contact AIAA's STEM K–12 Outreach Program Manager, [Lisa Bacon](#).

## AIAA Encourages Student Members to Apply for Board of Directors Student Liaison Position

AIAA is now accepting [applications](#) for its Board of Directors' Student Liaison position. The position allows this vital sector of the AIAA membership to have a more direct input to the Board, allowing for more informed decisions. Also, concerns, questions, areas of interest, and other perspectives can more readily be brought to light. The Student Liaison's term is two years. Anyone who has been an AIAA student member for at least one year and is attending a school within the United States is eligible (please note that although attendance is required, citizenship or permanent residence status is not). All candidates must submit a 500–1000 word essay that describes how they think they would best represent the AIAA student membership to the Board. Also, candidates must submit three letters of recommendation, one of which must be from a department head or faculty or research advisor, stating that the student would have their support. Candidates may be undergraduate or graduate students. [Applications](#) can be downloaded from the AIAA Web site (under "Applications" in the upper right-hand corner of the [Board of Directors Student Liaison page](#)).

[More Info >](#)

[Download Application >](#)

# Conferences and Events

## Highlights for Aerospace Sciences Meeting in Orlando



You still have time to register for the [49th AIAA Aerospace Sciences Meeting](#) including the New Horizons Forum and Aerospace Exposition, set for 4–7 January in Orlando, Florida. [The New Horizons Forum](#) will feature daily Keynotes and panelists.

## Trivia

In a 1974 movie, part of a car chase included a 360-degree flip by a car that then continued to drive. What was the movie, and where was the stunt developed? The second answer is related to something in this month's *Momentum*. Answers provided [here](#).

## Link up Through LinkedIn!

A great way to make connections with other members of the aerospace community is through AIAA's LinkedIn group. The group, available only to active AIAA members, is your "one-stop" forum for networking with other AIAA members, gaining insight into the day's aerospace headlines, discovering employment opportunities within the community, and learning new information about AIAA events. [Link-up with AIAA LinkedIn](#) today!

## Attention AIAA Members

The December issue of *Aerospace America* is now available online for AIAA members. Don't miss this month's edition, featuring "The Year in Review."



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

On Tuesday, Keynote Hans Mark and Moderator Robert Crippen will speak on the Early Days of the Space Shuttle; Wednesday, Keynote Charles Bolden and Moderator David Thompson will speak on the Space Shuttle Era—Results and Way Ahead; Thursday Keynote Ron Sega and Moderator Michael Aimone will address the role of Energy and Environment in Aerospace; and on Friday Congressman Todd Akin has been invited to speak and Joaquin Castro will moderate a panel on future directions of Hypersonics. The conference will also feature concurrent technical paper sessions, and multiple chances for networking through luncheons and receptions. Register online via [www.aiaa.org/events/asm](http://www.aiaa.org/events/asm)

## Engineers as Educators Workshop – 6 January 2011, 1930 hrs

Do you want to perfect your presentations with students of all grade levels? Learn simple, inexpensive activities that will demonstrate various aerospace concepts in the classroom? Have fun while doing it? This workshop, set for 6 January 2011, during the [49th AIAA Aerospace Sciences Meeting](#), will teach you concepts that will work with any type of informal education setting, such as a scout troop, after-school program, or weekend workshop. Taught by an AIAA master teacher, you will walk out with new tips and techniques to working with K–12 students and their teachers. Registration is required and limited, so reserve your spot early. Contact Lisa Bacon at [lisab@aiaa.org](mailto:lisab@aiaa.org) for more information.

[More Info >](#)

## “Champion of Change”

Are you prepared for planned or unplanned career transitions, or just beginning your career? This AIAA Career Workshop at the [49th AIAA Aerospace Sciences Meeting](#) features a series of panel discussions focused on preparing engineers for effectively navigating the career transition gauntlet. Topics include: resume writing, interviewing, career transition, and financial positioning.

In addition to the workshop, the Career & Workforce Development Committee will offer members and nonmembers personal support in resume reviews. Bring a copy of your resume, and sit down with one of the volunteers for review and constructive feedback.

AIAA members/nonmembers not attending the ASM Conference must pre-register for this free workshop. Please contact Chris Jessee at [chrisj@aiaa.org](mailto:chrisj@aiaa.org) or 703.264.3848 for instructions on registering.

## Tour NASA's Kennedy Space Center and Cape Canaveral During ASM



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

[More Info >](#)

## Get the Most Out of Your AIAA Membership

The best place to discover the many ways that you can network with AIAA members is at [info.aiaa.org](http://info.aiaa.org). This is the place to connect with other members in your geographic or technical interest areas. Discover upcoming local events, read the local section and technical committee [newsletters](#), and get in touch with officers and committee members. Make 35,000 connections today!

[More Info >](#)

## Member Spotlight

AIAA Congratulates Todd C. Farley



[A tour](#) of the NASA Kennedy Space Center, as well as Air Force and commercial launch facilities at Cape Canaveral, will be conducted on Friday, 7 January. The cost will be \$55 per person and will include round trip bus transportation, lunch, and an expert, informed tour conductor. Participants will have a brief opportunity to browse at the KSC gift shop. The bus will leave from the Marriott at 0800 hrs and return before 1500 hrs. Please note the KSC facility where the tour will be held is not handicap accessible. The tour is restricted to U.S. Nationals only.

(Pictured: NASA Kennedy Space Center. Credit: NASA)

[More Info >](#)

[ASM Registration Form >](#)

## Register for One of These Eight Courses Co-located with the Aerospace Sciences Meeting in Orlando

8–9 January 2011

- [Basic Measurement Uncertainty, Methods and Applications](#) (Instructor: Ronald Dieck)
- [C++ in Aerospace Simulations – Hands-On Workshop](#) (Instructor: Peter H. Zipfel)
- [CFD for Combustion Modeling](#) (Instructors: Heinz Pitsch, Suresh Menon)
- [Modern Design of Experiments](#) (Instructor: Richard DeLoach)
- [Perturbation Methods in Science and Engineering](#) (Instructor: Joe Majdalani)
- [Sustainable \(Green\) Aviation](#) (Instructor: Ramesh K. Agarwal)
- [Systems Requirements Engineering](#) (Instructor: John C. Hsu)
- [Verification and Validation in Scientific Computing](#) (Instructors: William L. Oberkampf, Christopher J. Roy)

## Registration is Now Open for the 14th Annual FAA Commercial Space Transportation Conference



Register today for the [14th Annual FAA Commercial Space Transportation Conference](#) set for 9–10 February in Washington, DC. The 2011 event will comprise four tracks: Space Industrial Base Issues; Private Commercial Space Market Segments; Government Customers for Commercial Space; and Hot Topics in Commercial Space Regulation. The conference will also feature Speakers from industry and government, and a multitude of networking opportunities. View the complete agenda or register today at [www.aiaa.org/events/ast](http://www.aiaa.org/events/ast).

Todd C. Farley, member of the AIAA Air Transportation Systems (ATS) Technical Committee, and past chair of the of the AIAA San Francisco Section, has been selected for, and has received, an AIAA Sustained Service Award for over a decade of outstanding dedicated service to AIAA, from the national level, with the Air Transportation Systems Technical Committee, to the local level with the San Francisco Section. Farley received the award during the joint ATIO/MAO awards ceremony on 14 September in Ft. Worth, Texas.

Farley has made significant contributions to AIAA through both his leadership of the ATS TC and the San Francisco Section. As a member of the ATS TC, Farley's leadership as chair, from 2002 to 2004, greatly increased the visibility of the TC, attracting new members and more fully aligning the committee with similar committees in AIAA's TC structure, so that the ATS TC could take on a more robust role than it previously had in AIAA's structure. Farley achieved this by formalizing the TC's activities, creating subcommittees in the areas of membership, programs, education, and awards, while invigorating the membership of the TC by going out and personally recruiting members. Under Farley's guidance, the TC grew the Aviation, Technology, Integration, and Operations (ATIO) Conference. Under Farley's leadership as Technical Chair of the Conference from 2003 to 2005, the conference experienced substantial growth in the quality and number of technical papers presented, attendance, and revenues.

[Full Story >](#)

## Contact Us

[Contact the Editor](#) of AIAA

***Momentum***—News to Accelerate the Aerospace Profession.

[Submit](#) story ideas.

## Save Money by Registering Early! Registration Opens January 2011 for the Following AIAA Conferences

Event Date: 29–31 March 2011 ([www.aiaa.org/event/infotech](http://www.aiaa.org/event/infotech))

### [Infotech@Aerospace 2011](#)

Event Date: 4–7 April 2011 ([www.aiaa.org/events/sdm](http://www.aiaa.org/events/sdm))

### [Structures, Structural Dynamics and Materials Conference](#)

### [Adaptive Structures Conference](#)

### [Non-Deterministic Approaches Conference](#)

### [Dynamic Specialist Conference](#)

### [Gossamer Systems Forum](#)

### [Multidisciplinary Design Optimization Specialist Conference](#)

## GNC/AFM/MST Abstract/Draft Manuscript Deadline 17 January 2011



The abstract/draft manuscript deadline for the [2011 AIAA Guidance, Navigation, and Control Conference](#) (GNC) and co-located conferences is 17 January. GNC is the largest forum dedicated to guidance, navigation, and control serving the aerospace community. The conference, along with the [AIAA Atmospheric Flight Mechanics Conference](#) (AFM) and the [AIAA Modeling and Simulation Technologies Conference](#) (MST), will take place 8–11 August 2011 at the Oregon Convention Center, in Portland, Oregon. To submit an abstract or draft manuscript, visit [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).

## Submitting a Technical Paper?

Information regarding the affiliations of authors and co-authors is taken directly from the AIAA/ScholarOne database. To ensure that all contact information is correct we encourage everyone to log in to AIAA.org with their e-mail address and make sure that their information is up to date. If you do not have an account, now is the perfect time to create one. Once you have created or verified your information, you can access the submission site by selecting the conference at which you would like to present a paper on the main event calendar. Click "Submit a Paper" on the right-hand side, and then "Begin a New Submission or View a Previous Draft/Submission" in the center of the page which will then take you to the ScholarOne submission site

for that conference. Thanks to our single sign-on access, your contact information will now be added/updated in the submission site as well. You can do this anytime before the abstract deadline. You do not need to submit your abstract at that time. By completing this prior to the abstract deadline, you will ensure that the author affiliation is correct in the final program. Once the abstract deadline has past, all changes must be made manually through the conference technical chair. If you need assistance changing your personal information please contact AIAA Customer Service at 1.800.639.2422 (toll-free, U.S. only) or 703.264.7500.

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